NACA

RESEARCH MEMORANDUM

CASE FILE
COPY

PRESSURE DISTRIBUTIONS ON THE BLADE SECTIONS

OF THE NACA 10-(3)(066)-033 PROPELLER

UNDER OPERATING CONDITIONS

By Julian D. Maynard and Maurice P. Murphy

Langley Aeronautical Laboratory
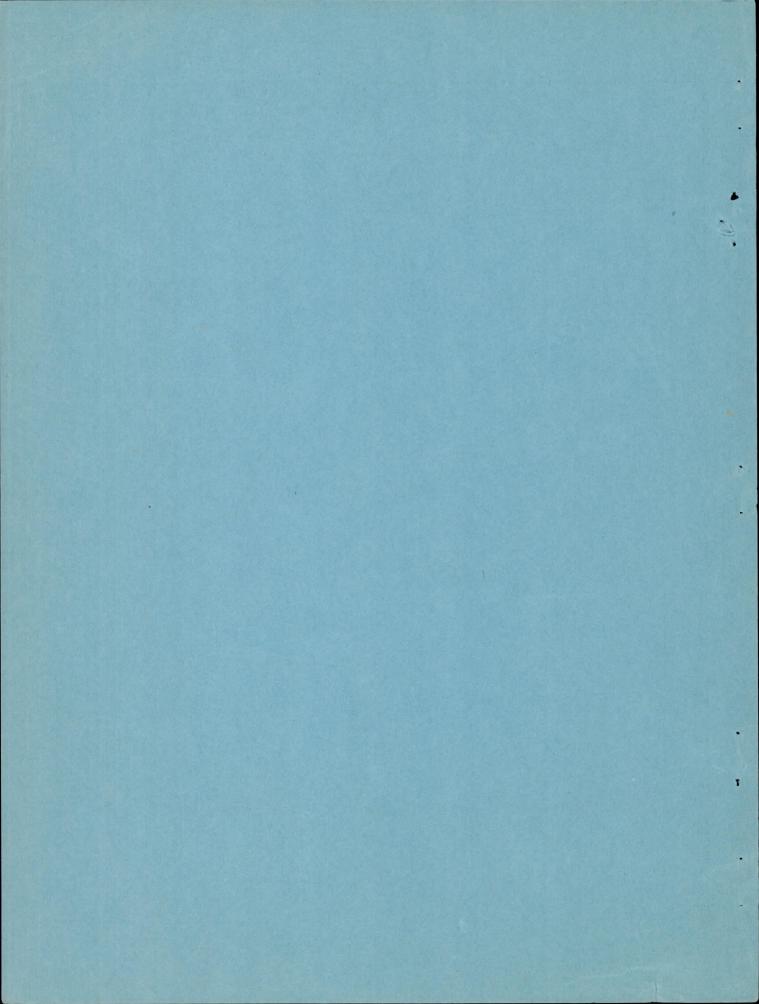Langley Air Force Base, Va.

CLASSIFIED DOCUMENT

This document contains classified information
affecting the National Defense of the United
States within the meaning of the Espionage Act,
USC 50:31 and 32. Its transmission or the
revelation of its contents in any manner to an
unauthorized person is prohibited by law.
Information so classified may be imparted
only to persons in the military and naval
services of the United States, appropriate
civilian officers and employees of the Federal
Government who have a legitimate interest
therein, and to United States citizens of known
loyalty and discretion who of necessity must be
informed thereof.

NATIONAL ADVISORY COMMITTEE
FOR AERONAUTICS

WASHINGTON

January 24, 1950

NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS

RESEARCH MEMORANDUM

PRESSURE DISTRIBUTIONS ON THE BLADE SECTIONS

OF THE NACA 10-(3)(066)-033 PROPELLER

UNDER OPERATING CONDITIONS

By Julian D. Maynard and Maurice P. Murphy

SUMMARY

This is the first of a series of papers presenting the preliminary results obtained in tests of five propellers. The tests were made to determine blade-section characteristics from measurements of the pressure distributions on the blade sections under operating conditions. Values of the section normal-force coefficients, chordwise-pressure-force coefficients, and pitching-moment coefficients obtained by integration of the pressure distributions are presented for 11 sections of one of the propellers having a design lift coefficient of 0.3 and varying in thickness from about 4 percent at the tip to 16 percent at the spinner surface. The measured pressure distributions, together with the results, are presented in the form of tables, and, to expedite distribution, no attempt is made in this paper to analyze the data.

INTRODUCTION

A need for propeller blade-section characteristics in the transonic speed range has long been recognized, but because of wind-tunnel choking effects such data have not been obtained by the usual two-dimensional airfoil tests in wind tunnels. In the low-subsonic-speed range, propeller characteristics may be accurately predicted (reference 1) from a knowledge of the two-dimensional airfoil characteristics. In the important transonic-speed range, however, it is not known whether the two-dimensional airfoil characteristics, even if they were available, could be used for the accurate prediction of propeller performance. A knowledge of the effects of velocity gradient along the blade, the three-dimensional tip effects, and the action of centrifugal force on the boundary layer along the blade would also be desirable.

To fill this urgent need for detailed information, a preliminary investigation (reference 2) was made in the Langley 16-foot high-speed tunnel to determine the propeller section characteristics by measuring the pressure distribution on the airfoil sections of an operating propeller. Although the forward Mach number did not exceed 0.7 in these tests, the combination of rotational and forward speeds produced blade-section Mach numbers as high as 1.2. The results of this preliminary investigation showed that an enlightening knowledge of the operating characteristics of the blade sections at high Mach numbers was obtained, and a more comprehensive program of tests was begun. Five propellers were constructed and instrumented for the measurement of the pressure distribution on any section along the blade radius. The blades had NACA 16-series sections with design lift coefficients of 0, 0.3, or 0.5, and varied in thickness from about 3 to 30 percent. The tests of these five propellers have been completed, and many data have been obtained for a total of 40 blade sections.

The purpose of this paper is to present in preliminary form the results of the tests of one of the five propellers, and to expedite distribution no attempt has been made to analyze the data. Pressure distributions were obtained on 11 sections of this propeller, having a design lift coefficient of 0.3 and varying in thickness from about 4 to 16 percent.

SYMBOLS

The symbols used throughout this paper, some of which are defined in figure 1, are as follows:

B number of blades

b blade chord, feet

c distance from section leading edge to any point on the chord, feet

$\bar{c}$ distance from section leading edge to any point about which pitching moments are taken, feet

c_c section chordwise-force coefficient

c_d section drag coefficient

c_{d_f} section friction-drag coefficient

c_l section lift coefficient

c_{l_d} blade-section design lift coefficient

c_m section pitching-moment coefficient about the quarter-chord point

c_n section normal-force coefficient

D propeller diameter, feet

F_c section chordwise pressure force, pounds

F_n section normal pressure force, pounds

G Goldstein induced-velocity correction factor for a finite number of blades

g acceleration due to gravity $\left(32.2 \text{ ft/sec}^2\right)$

h blade-section maximum thickness, feet

J advance ratio (V/nD)

K gas constant $(53.3 \text{ ft-lb/lb/}^\circ\text{F})$

M Mach number of advance

M_x helical section Mach number $\left(M\sqrt{1 + \left(\dfrac{\pi x}{J}\right)^2}\right)$

m section pitching moment, pound-feet

N propeller rotational speed, revolutions per minute

n propeller rotational speed, revolutions per second

P pressure coefficient $\left(\dfrac{p - p_o}{q_x}\right)$

p static pressure at a point on the airfoil surface, pounds per square foot

p_m static pressure as read on manometer board (uncorrected for centrifugal pressure), pounds per square foot

p_o free-stream static pressure, pounds per square foot

q_x resultant dynamic pressure at a radial station x, pounds per square foot $\left(\frac{1}{2}\rho W_o^2\right)$

R propeller-tip radius, feet

r radius to a blade element, feet

r_p polar ordinate, feet

r_s radius to orifice in rotating shaft of pressure-transfer device, feet

s distance along surface of the blade section, feet

$\overline{T}$ absolute mean temperature of air in propeller tubing, ^oF absolute

V velocity of advance (corrected for wind-tunnel wall-interference effects), feet per second

W_o velocity vector $\left(\sqrt{V^2 + (\pi x n D)^2}\right)$

W resultant velocity at blade section, feet per second

w_i induced velocity at blade section, feet per second

x fraction of propeller-tip radius (r/R)

y normal distance from chord line to upper or lower surface of airfoil, inches

α_i induced angle of attack, degrees

α_x angle of attack of blade element, corrected for induced flow and blade deflection, at radial station x, degrees $(\beta_x - \phi + \Delta\beta)$

α_x' geometric angle of attack of blade element at radial station x, degrees $(\beta_x - \phi_o)$

β blade angle, degrees (equal to 45° at $x = 0.70$)

$\beta_{0.75R}$ blade angle at 0.75 tip radius, degrees

β_t twist in blade measured from station $x = 0.75$, degrees

β_x blade angle at station x, degrees $\left(\beta_{0.75R} - \beta_t\right)$

$\Delta\beta$ change in blade angle caused by operating loads, degrees

θ polar angular ordinate, radians

ρ mass density of air in free stream, slugs per cubic foot

σ solidity $\left(B\dfrac{b}{D}\Big/\pi x\right)$

ϕ helix angle, degrees $\left(\phi_o + \alpha_i\right)$

ϕ_o geometric helix angle, degrees $\left[\tan^{-1}(J/\pi x)\right]$

ψ slope angle at the surface of the section referenced to chord, degrees

ω propeller rotational speed, radians per second

Subscripts:

L   lower-surface value

U   upper-surface value

<div align="center">APPARATUS</div>

Propeller dynamometer.- The dynamometer used to test the propellers is powered by two 1000-horsepower electric motors arranged in tandem and coupled for the present tests to allow the power of both motors to be expended through a single propeller. A variable-frequency power supply affords an accurate speed control from 300 to 2200 revolutions per minute. A detailed description of the dynamometer is presented in reference 3, and a schematic diagram of the apparatus used for the pressure-distribution tests is shown in figure 2. The fairing profile was calculated from a distribution of sources and sinks to produce a body of revolution with

<div align="center">CONFIDENTIAL</div>

uniform axial velocity in the plane of the propeller. This axial–velocity distribution has been checked experimentally and found to be uniform within 1 percent. The gap between the propeller blade and the spinner surface at the propeller blade–spinner juncture is very small, but is not sealed. Most of the propeller tests were made with two blades; however, a few tests were made with only one blade to increase the range of advance ratio and power loading for a given blade angle. For these one–blade tests an articulated hub with a counterweight was used, but the counterweight was completely enclosed in the spinner. Figure 3 is a photograph of the dynamometer with the one–blade propeller installed.

Propeller blades.– The propeller blades are made of solid duralumin and are designated the NACA 10–(3)(066)–033 design. The digits in the propeller designation indicate a 10–foot–diameter propeller having NACA 16–series blade sections (reference 4) with the following design parameters at the 0.7 radius: section design lift coefficient of 0.3, thickness ratio of 0.066, and solidity of 0.033 per blade. These blades have a rectangular plan form with a blade width of 8 inches extending to within $1\frac{1}{4}$ inches of the tip. Also, the blade–section camber, or design lift coefficient, was the same for all sections except at the 0.975 radius, where the blade section was not a true NACA 16–series airfoil. This section at the 0.975 radius was the result of the fairing necessary at the tip of the propeller, and the ordinates were measured after the blade was constructed. These ordinates for the blade section at the 0.975 radius are given in table 1.

Figure 4 gives the blade–form curves for the NACA 10–(3)(066)–033 blade design, and figure 5 is a photograph of the blade containing the pressure tubes. The pressure tubes were imbedded in both the upper and lower surfaces of the blade at 12 specified chordwise stations where it was desired to measure the pressure. The tubing was laid in radial grooves with the tops of the tubes flush with the surrounding surface of the blade, and were retained in the blade by peening the edges of the grooves at intervals along the radius. A metal spray was applied to fill any cavities around the tubes. The blade was then carefully finished to its original shape. Orifices could then be drilled in the tubes at any desired radial station. The first pressure distributions were obtained on the outboard station nearest the tip, and when measurements at this station were complete, the orifices were plugged with a low–melting–point alloy and a new set of orifices drilled at the next desired inboard station. Eleven radial stations, as indicated in figure 4, were chosen as the blade sections of the NACA 10–(3)(066)–033 propeller on which pressure distributions were desired.

The true static pressure at an orifice on the blade surface is not indicated directly on the recording manometer because of the effect of centrifugal pressure acting on the column of air inside the blade tubes. The centrifugal pressure correction can be calculated very accurately when the air column temperature is known. This temperature was assumed to be the same as the mean blade temperature which was measured by means of a resistance thermometer installed in an additional groove cut into the thrust face of the propeller blade at the 50-percent-chord station. The blade mean temperature was recorded simultaneously with the pressures for each test point.

Pressure-transfer device.- The pressure tubes were brought out of the blade surface inside the rotating spinner and run through the hollow dynamometer shaft to a transfer device mounted in the rear. Details of this pressure-transfer device are shown in figure 6. It was necessary to measure only 24 pressures simultaneously, but 30 chambers were provided to have spares in case of a leaking chamber. The pressure tubes shown in the stationary spacers were brought out at the rear end plate and connected to a multiple-tube manometer located outside the tunnel test section. The pressures were recorded by a remotely operated camera.

Optical deflectometer.- An accurate knowledge of the blade-section angle of attack in the reduction of pressure data to airfoil coefficients is obviously desirable; moreover, such knowledge is essential to the accurate determination of the component of normal force acting in the drag direction. While both the initial blade angle and the nominal helix angle could be determined precisely, the aerodynamic and centrifugal forces acting on the blade produced a torsional deflection of appreciable magnitude. An optical deflectometer (fig. 7) was devised for measuring the blade torsional deflection. In principle, the deflectometer was a theodolite movable along an axis parallel to the propeller axis of rotation. A broad light beam transmitted along the optical axis was reflected from a small mirror attached to the propeller blade. The reflection could be seen only when the mirror surface was normal to the optical axis. From a knowledge of the location of the theodolite center with reference to the propeller, and azimuth and elevation of the optical axis, the instantaneous blade angle and consequently blade torsions were determinable. Blade twist was measured simultaneously with the pressure measurements at three radial stations, $x = 0.45$, 0.70, and 0.90. Repeated tests after fully developing the instrument and operation techniques indicated that the data obtained with the deflectometer were accurate to within 0.10° at the higher speeds, and to within 0.05° at the lower speeds.

TESTS

Because the blade-section angle of attack is a function of advance ratio for a constant blade angle, a Mach number range was covered by running the tests successively over the same range of advance ratio using proportionately increased values of tunnel airspeed and propeller rotational speed. Most of the tests were made with the blade angle set at 45° at the three-quarter (45-inch) radius. A constant rotational speed was used for some of the tests, and a range of advance ratio was covered by changing the tunnel airspeed, which could be varied from about 60 to 500 miles per hour. Because of dynamometer power limitations the complete range of advance ratio could not be covered at rotational speeds above 1600 revolutions per minute $\left(\beta_{0.75R} = 45°\right)$; therefore some tests were made with the tunnel-air-stream Mach number held constant, and the range of advance ratio was covered by changing the propeller rotational speed.

Additional tests were made for the radial stations, $x = 0.65$ and 0.78. These additional tests consisted of two groups. In one group, tests were made at a rotational speed of 1350 revolutions per minute for blade angles from 20° to 55° in 5° increments. In the other group, tests were made at a blade angle of 30° for several constant values of rotational speed up to 2160 revolutions per minute. These additional tests were made to study the effects of different radial blade loadings and Mach number gradients on the measured pressure distributions. Also, a greater range of section angle of attack was possible in the tests made at the lower blade angles. In order to extend the range of section angle of attack at the higher Mach numbers several tests were made with a one-blade propeller to obtain pressure distributions at the 0.975, 0.95, 0.85, and 0.70 radius stations.

Running the tests as described, adequate ranges of section Mach number and angle of attack were obtained for each of the 11 blade sections. The Mach number range covered for the outboard sections was from about 0.7 to 1.2, and for the inboard sections from about 0.3 to 0.7. The section angle-of-attack range was from about −2° to 11° for low values of Mach number, and from about −2° to 4° for the higher values of Mach number.

REDUCTION OF DATA

The usual wind-tunnel-wall corrections, as described in reference 3, have been applied to the data to obtain the equivalent free airspeed.

Pressure coefficient.— The pressure coefficient for any pressure at the surface of the section is defined as the difference between the measured surface pressure and the ambient free-stream static pressure divided by the resultant section dynamic pressure; therefore

$$P = \frac{p - p_o}{q_x}$$

The propeller rotation produces a change in the section velocity and the total pressure, but the static pressure and mass density remain unchanged from the free-stream condition. The pressure p at a point on the blade surface is the pressure recorded on the manometer corrected for the centrifugal force on the air column in the pressure tube due to the rotation of the blade, so that

$$p = p_m e^{\left[\frac{\omega^2}{2g\overline{KT}}\left(r^2 - r_s^2\right)\right]}$$

In the present installation r_s was very small compared with r, and consequently was neglected in computing the corrected pressure p.

Normal-force coefficient.— The normal force is that pressure force acting perpendicular to the chord of the section

$$F_n = \oint p \cos \psi \, ds = \int_0^b \left[(p_L - p_o) - (p_U - p_o) \right] dc$$

The normal-force coefficient is defined as the normal force acting on a section of unit span divided by the chord of the section and the resultant section dynamic pressure; thus,

$$c_n = \frac{F_n}{q_x b} = \int_0^{1.0} (P_L - P_U) d\frac{c}{b}$$

Chordwise-force coefficient.— The chordwise force of a section is defined as the pressure force acting parallel to the chord.

$$F_c = \oint p \sin \psi \, ds = \int_0^b \left[(p_U - p_o)\tan \psi_U - (p_L - p_o)\tan \psi_L \right] dc$$

The chordwise-force coefficient is defined as the chordwise force acting on a section of unit span divided by the chord and the resultant dynamic pressure; thus,

$$c_c = \frac{F_c}{q_x b} = \int_0^{1.0} \left[P_U \tan \psi_U - P_L \tan \psi_L \right] d\frac{c}{b} \tag{1}$$

or

$$c_c = \int_0^{2\pi} (P) \left[\frac{\sin \psi}{\sin(\theta - \psi)} \right] \left(\frac{r_p}{b} \right) d\theta \tag{2}$$

Equation (2) is the equivalent of equation (1) with the Cartesian coordinates converted to polar coordinates and with the origin located within the section. The total c_c is produced by evaluating these two equations. Equation (1) is used to evaluate that portion of chordwise-force coefficient from $\frac{c}{b} = 0.025$ to $\frac{c}{b} = 1.0$. Equation (2) is used to evaluate the chordwise-force coefficient from $\frac{c}{b} = 0$ to $\frac{c}{b} = 0.025$. About the chord line the sign of the slope angle ψ was taken to be positive for the forward half of the upper surface and negative for the forward half of the lower surface. The origin of the polar coordinate system was placed on the chord line at a c/b value of 0.125. In equation (2), r_p is used to represent the radius from the polar origin to the point on the surface of the section.

Pitching-moment coefficient.- The pitching-moment coefficient of a section is defined as the moment of the normal force about a given station on the chord of a section of unit span, divided by the chord squared and the resultant section dynamic pressure; thus,

$$c_m = \frac{m}{q_x b^2} = \frac{\overline{c}}{b} \int_0^{1.0} (P_L - P_U) d\frac{c}{b} - \int_0^{1.0} (P_L - P_U) \frac{c}{b} d\frac{c}{b}$$

A positive value of moment coefficient is defined as a moment tending to increase the section angle of attack. In this paper the moments were taken about the section quarter-chord point where $\frac{\overline{c}}{b} = 0.25$.

Angle of attack.— In addition to the correction of the section angle of attack necessary because of the blade deflection, a second correction is necessary because of the induced flow. The section angle of attack may be expressed as

$$\alpha_x = \beta_x - \phi_o + \Delta\beta - \alpha_i = \alpha_x' + \Delta\beta - \alpha_i$$

where $\Delta\beta$ is the deflection angle and α_i is the induced angle. The deflection angle was measured with the optical deflectometer previously described, and the measured values have been checked against values calculated from a knowledge of the loading along the blade radius. In most cases excellent agreement was obtained between the calculated and measured values of the deflection angle, but in some of the initial tests, before the deflectometer and operation techniques were fully developed, differences amounting to about 0.4° were found. In such cases the calculated values of the deflection angle were used.

The induced angle was calculated by a method of successive approximations using Lock's equation (reference 5) relating the interference velocity w_i with the true resultant velocity W.

$$w_i = \frac{\sigma c_l W}{4G \sin \phi}$$

Since the interference velocity may be assumed to be perpendicular to the true resultant velocity, then

$$\tan \alpha_i = \frac{\sigma c_l}{4G \sin \phi}$$

It should be pointed out that if the actual loading along the blade radius is considerably different from an optimum (or Goldstein) loading, then the induced angles calculated for the blade sections using Goldstein's factor G are in error. However, the assumption of an optimum loading was made in calculating the induced angles presented in this paper. As a first approximation for calculation of the induced angle, c_l was assumed to be equal to c_n, and ϕ was assumed to be equal to ϕ_o.

Usually only two or three approximations were required to obtain calculated values equal to the assumed values. The values used for Goldstein's induced—velocity correction factor G for a finite number of blades were obtained by an interpolation of the values calculated by Lock in reference 5 for a two—blade propeller (fig. 8). The values of Goldstein's factor G for a one—blade propeller (fig. 9) were obtained by extrapolation to the one—blade case of values presented in reference 5 for

two-, three-, and four-blade propellers. As a guide in determining the
proper shape of the extrapolated curves Prandtl's equation (reference 5)
was used.

RESULTS

The complete results are presented in tables 2 to 12, each table
showing the results for one of the 11 chosen blade sections. The blade
section and blade twist at each radial station, together with the
corresponding table number, are listed in the following table:

Radial station, x	Blade section	Blade twist, β_t (deg)	Table number
0.30	NACA 16-316.25	-23.8	2
.45	NACA 16-310.00	-14.3	3
.50	NACA 16-308.94	-11.5	4
.60	NACA 16-307.50	-6.4	5
.65	NACA 16-307.00	-4.2	6
.70	NACA 16-306.62	-2.0	7
.78	NACA 16-305.85	1.1	8
.85	NACA 16-305.30	3.5	9
.90	NACA 16-304.80	5.3	10
.95	NACA 16-304.40	6.9	11
.975	(See table 1)	7.7	12

The digits following the dash in the blade-section designation have the
following significance: The first digit is 10 times the design lift
coefficient and the remaining digits give the section thickness in percent
chord, for example, the blade section at the 0.95 radius is an NACA
16-series section having a design lift coefficient of 0.3 and a thickness
of 4.4 percent of the chord. Each of the tables presenting the results
is subdivided into several parts, each part being on a separate page
showing the data for a particular test condition over a range of advance
ratio. Since there are many tables, an index to the tables is provided
at the end of the paper to facilitate their use.

Pressure distributions.- The value of the pressure coefficient at
each chordwise station on both the upper and lower surfaces is given in
a column of the tables for each test point. Each column therefore defines
a pressure distribution. Above each column are given the corresponding
values of advance ratio, section Mach number, nominal angle of attack,
deflection angle, induced angle of attack, normal-force coefficient,

moment coefficient, and chordwise—pressure—force coefficient. It will
be noted in the tables that a few faired values, rather than measured
values, of the pressure coefficient are given. This was necessary for
points at the trailing edge and, in some cases, for points near the
trailing edge of the outboard radial stations where the section thickness
was insufficient to allow installation of a pressure tube. In the few
instances where the faired value of the pressure coefficient at the
trailing edge differed for the upper and lower surfaces, only the value
for the lower surface is indicated in the tables. The values given for
the pressure coefficient at the leading edge of the blade sections were
calculated for the stagnation pressure.

Figure 10 shows some typical pressure distributions along the
section chord which were obtained for the NACA 16—304.40 blade section
located at the 0.95 radius. The angle of attack was approximately the
same (0.6°) for all three distributions shown. At the subcritical speed,
Mach number 0.64, a typical subsonic pressure distribution was obtained
which is relatively flat and in close agreement with the theoretical
two—dimensional pressure distribution calculated for this section. At
this Mach number the section had a normal—force coefficient of 0.20.
At a Mach number of 0.9, which is just at the critical speed of this
section, there is little change in the shape of the pressure diagram
except an increase in the magnitude of the pressures and slight irregu-
larities near the leading edge. With this increase in Mach number the
normal—force coefficient increased to a value of 0.34, which is approxi-
mately the increase predicted by the Prandtl—Glauert rule. When the
Mach number is increased beyond the critical to a low supersonic speed,
the pressure diagram undergoes considerable change. The pressures near
the leading edge of the blade section become more positive, and over
most of the upper surface supersonic flow is established which terminates
in a shock close to the trailing edge. In this transition the lift coef-
ficient has dropped back to a value appreciably lower than was obtained
at the critical speed. It should be noted that at the subcritical speed
low pressures on the rear half of the blade section are counterbalanced
by low pressures over the forward part with the result that the pressure
drag is very small. At the supersonic speed, however, pressures over
the rear half of the blade section are much more negative than those over
the forward half with the result that there exists a large chordwise
pressure force or drag, and also a change in the pitching moment about
the quarter—chord point.

Pressure diagrams such as those in figure 10 have been integrated
to obtain values of the section normal—force, chordwise—force, and
moment coefficients presented in the tables. These coefficients, together
with the section Mach number and angle of attack, are plotted in figure 11
to show the variation with advance ratio. The data in figure 11 are from
a single test, and from several plots such as this cross plots may be
made to show the variation of the coefficients with Mach number, using

angle of attack as a parameter. Although it is not the purpose of this
paper to analyze the data presented, a brief inspection of the results
has indicated certain phenomena and limitations which must be considered
in any thorough analysis of the data.

Blade loadings.— In addition to providing a picture of the lift
along the radius of a propeller, loading curves are important in the
reduction of the data for two reasons:

(1) The radial loading affects the blade deflections which are of
considerable magnitude and must be taken into account in the determination
of the section angle of attack.

(2) The radial loading affects the induced angle of a section which
must also be taken into account in the determination of the angle of
attack.

The variation of the normal—force coefficient along the blade radius
is shown in figure 12 for propeller operation at an advance ratio of 2.2
and the five values of stream Mach number shown. It should be emphasized
that these curves show the actual loading at the propeller blade, as
distinguished from the usual loading downstream obtained from wake—survey
measurements. The upper curves in figure 12 show the variation of blade—
section Mach number along the blade radius, and the line legends correspond
to the lines of the loading curves below. Note that as the stream Mach
number increases from 0.38 to 0.56 the loading over the outer portion of
the blade increases progressively. This increase corresponds to the
increase shown by the second diagram in figure 10. As the stream Mach
number is further increased to 0.60, the outboard sections lose some of
their lift because of compressibility effects. At a stream Mach number
of 0.65 the blade sections over the outer half of the blade are operating
at Mach numbers above their critical, and at the 0.65 radius the section
normal force has dropped to a comparatively low value. However, at the
0.7 radius stations where the section is operating at a Mach number
of 0.93 there is a considerable recovery of the lift.

Blade deflections.— Since the blade deflections depend to a large
extent on the loading along the blade radius, the radical changes in
the loading curves with changes in Mach number shown in figure 12 will
cause radical changes in the blade deflections. Figure 13 shows the
blade deflections along the blade radius for the loading curves in
figure 12. At the blade tip the deflection angle changes from 0.55°
to -0.33° when the stream Mach number changes from 0.56 to 0.65. Note
that the changes in the shapes of the deflection curves correspond to
the changes in the loading curves of figure 12. The test condition chosen
in figures 12 and 13 is for a lightly loaded propeller, and for some
conditions of operation the deflection angle amounted to as much as 2.3°.

It should be pointed out that since the advance ratio is the same for all the data in figure 12 the angle of attack of a blade section at a particular radius would be the same for all the stream Mach numbers if the deflections and induced effects are disregarded.

Induced-angle correction.— Figure 14 shows the variation of the normal-force coefficient with angle of attack for several outboard radial stations operating at a constant section Mach number of 0.65. In figure 14(a) no correction for the induced angle has been applied to the values of angle of attack, and in figure 14(b) a correction for the induced angle has been applied assuming an optimum loading along the blade radius. Since the outer sections of the blades have the same camber but are slightly thinner than the inboard ones, the slopes of the curves for the outer sections would be expected to be as great or greater than for the inboard ones. Figure 14 shows that the induced-angle correction increases the slopes of the curves, but the assumption of an optimum loading in calculating the induced angles may lead to errors in the determination of the true angle of attack and of the lift-curve slopes. In figure 15 the loading parameter $bc_l/bc_{l0.75R}$ for an optimum (or Goldstein) loading is compared with the loading obtained experimentally for the same operating condition. The curves of figure 15 are typical in that they show that the experimental propeller loading deviates from the ideal with relatively high loading near the tip and low loading inboard. With a loading of this type it would be expected that the induced angles for stations near the tip would be greater than those calculated from the simple relation used. The curves of figure 14 also indicate that the induced angles near the tip must be greater if the data are to be consistent. The values of the induced angle α_i presented in the tables are therefore somewhat in error, particularly for the outboard blade sections. The extent of the error in the induced angles has not yet been determined, but at the present time an attempt is being made to develop an adequate method for calculating the induced angle for an arbitrary loading. A treatment of this subject is given in reference 6. It should be pointed out that there are other factors, such as Mach number effects (reference 7), which should be taken into account in an accurate determination of the true section angle of attack.

Blade-section lift coefficient.— The values of the normal-force and chordwise-force coefficients may be resolved into blade-section lift coefficients by using the relationship

$$c_l = c_n \cos \alpha_x - c_c \sin \alpha_x$$

Since the last term in the above equation is the product of two small quantities and since the cosine of small angles is approximately one, the value of the section lift coefficient is very nearly equal to the

normal-force coefficient. Since this is true, the error in the angle of attack (due to inaccuracy of the induced-angle calculation) will have a negligible effect on the values of the section lift coefficient.

Blade-section drag coefficient.- The values of the blade-section drag coefficient may be obtained by using the relationship

$$c_d = c_n \sin \alpha_x + c_c \cos \alpha_x + c_{d_f}$$

where c_{d_f} is the friction drag coefficient. This friction drag coefficient has been estimated to be about 0.004 from a study of the data presented in reference 8. An inspection of the above equation for the drag coefficient reveals that an error in the angle of attack will have a greater effect on the values of the drag coefficient than on the lift coefficient because of the trigonometric relations used in calculating the drag from the normal and chordwise forces. For this reason an accurate determination of the drag coefficient is not possible until an accurate evaluation of the induced angle and section angle of attack is made.

The determination of the chordwise-force coefficient, as described under the section on reduction of data, is at best an approximation from $\frac{c}{b} = 0$ to $\frac{c}{b} = 0.025$. At Mach numbers below the critical most of the pressure drag is caused by the pressures over the leading edge of the blade section. Since it was not possible to install pressure tubes in the blades at the leading edge, the values of the chordwise-force coefficient at the lower Mach numbers are greatly affected by the fairing of the pressure-distribution curves in the region of the leading edge. For this reason values of the chordwise-force coefficient are given in the tables only for those Mach numbers which are above the critical for the particular blade section. The evaluation of the chordwise-force coefficient at Mach numbers above the critical is believed to be reasonably accurate, and the values are given to indicate the trend of the blade-section drag in this important Mach number range. In general, the blade-section drag at subcritical speeds as determined from the pressure distributions will not be reliable, since both the chordwise force and the component due to the normal force are so uncertain.

Blade-section moment coefficient.- The moment coefficients were calculated about the quarter-chord point from the values of the normal force and do not include the effects of the chordwise force. This simplification results in a negligible error since the blade sections are thin and have fairly low cambers. The values of the pitching moment about the quarter-chord point are generally negative, that is, they tend to reduce the blade angle.

One-blade propeller tests.- The results of the one-blade propeller
tests are included in the tabulations. A preliminary analysis of these
data reveals some disagreement with the results of the two-blade propeller
tests. The reason for this disagreement is not yet known. It may be
due in part to the inaccuracy in the final angle of attack. It is
expected that further analysis of these data may provide an explanation.
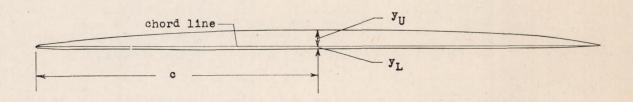
Langley Aeronautical Laboratory
     National Advisory Committee for Aeronautics
          Langley Air Force Base, Va.

REFERENCES

1. Crigler, John L.: Comparison of Calculated and Experimental Propeller
     Characteristics for Four-, Six-, and Eight-Blade Single-Rotating
     Propellers. NACA ACR 4B04, 1944.

2. Evans, Albert J., and Liner, George: Preliminary Investigation to
     Determine Propeller Section Characteristics by Measuring the
     Pressure Distribution on an NACA 10-(3)(08)-03 Propeller under
     Operating Conditions. NACA RM L8E11, 1948.

3. Corson, Blake W., Jr., and Maynard, Julian D.: The NACA 2000-Horsepower
     Propeller Dynamometer and Tests at High Speed of an NACA 10-(3)(08)-03
     Two-Blade Propeller. NACA RM L7L29, 1948.

4. Stack, John: Tests of Airfoils Designed to Delay the Compressibility
     Burble. NACA Rep. 763, 1943.

5. Lock, C. N. H., and Yeatman, D.: Tables for Use in an Improved Method
     of Airscrew Strip Theory Calculation. R. & M. No. 1674, British
     A.R.C., 1935.

6. Kawada, Sandi: Calculation of Induced Velocity by Helical Vortices
     and Its Application to Propeller Theory. Rep. No. 172 (vol. XIV, 1),
     Aero. Res. Inst., Tokyo Imperial Univ., Jan. 1939.

7. Tsien, Hsue-Shen, and Lees, Lester: The Glauert-Prandtl Approximation
     for Subsonic Flows of a Compressible Fluid. Jour. Aero. Sci.,
     vol. 12, no. 2, April 1945.

8. Cleary, Harold E.: The Effects of Reynolds Number on the Application
     of NACA 16-Series Airfoil Characteristics to Propeller Design.
     NACA RM L7H12, 1947.

CONFIDENTIAL

TABLE 1.   ORDINATES FOR THE BLADE-SECTION AT THE 0.975 RADIUS

OF THE NACA 10-(3)(066)-033 PROPELLER

c, inches	y_U, inches	y_L, inches
0	0	0
.048	.010	.009
.10	.023	.014
.20	.040	.021
.40	.065	.027
.60	.085	.031
.80	.102	.034
1.20	.134	.039
1.60	.161	.043
2.00	.185	.049
2.40	.205	.053
3.20	.230	.050
4.00	.240	.041
4.80	.233	.040
5.60	.216	.044
6.40	.186	.044
7.20	.134	.040
7.60	.085	.031
8.00	0	0

CONFIDENTIAL

CONFIDENTIAL

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-316.25 PROPELLER BLADE SECTION (x = 0.30)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 45°.

	J	1.633	1.766	1.877	2.008	2.128	2.261	2.376	2.554	2.480	2.352	2.209	2.088	1.972	1.855	1.697
	M_x	.322	.344	.359	.383	.401	.420	.439	.467	.457	.434	.413	.393	.373	.358	.331
	α_x'	8.79	6.89	5.46	3.94	2.69	1.43	.44	-.95	-.39	.64	1.72	2.75	4.34	5.74	7.82
	$\Delta\beta$	.02	.02	.02	.02	.01	.01	0	0	0	0	.01	.01	.02	.02	.02
	α_i	1.73	1.37	1.12	.89	.80	.68	.52	.32	.39	.59	.73	.82	.95	1.19	1.55
	c_n	.7079	.5672	.4709	.3768	.3432	.2977	.2303	.1432	.1723	.2581	.3197	.3535	.4035	.4995	.6393
	c_m	.0271	.0222	.0172	.0021	-.0233	-.0473	-.0566	-.0780	-.0722	-.0548	-.0365	-.0166	.0083	.0187	.0270
	c_c															
	c/b	Pressure coefficient, P														
Upper surface	0.000	1.026	1.030	1.033	1.037	1.041	1.046	1.049	1.056	1.054	1.041	1.044	1.040	1.035	1.033	1.028
	.025	-1.979	-1.484	-1.103	-.756	-.489	-.258	-.071	.176	.081	-.111	-.357	-.564	-.837	-1.192	-1.709
	.050	-1.771	-1.397	-1.116	-.850	-.650	-.471	-.318	-.105	-.190	-.346	-.545	-.704	-.918	-1.175	-1.572
	.100	-1.317	-1.098	-.932	-.764	-.639	-.521	-.415	-.261	-.322	-.433	-.569	-.675	-.813	-.971	-1.208
	.200	-1.040	-.916	-.816	-.701	-.632	-.560	-.491	-.383	-.431	-.495	-.583	-.649	-.735	-.824	-.991
	.300	-.917	-.834	-.764	-.686	-.643	-.596	-.546	-.468	-.502	-.545	-.610	-.653	-.706	-.766	-.885
	.400	-.789	-.735	-.698	-.639	-.622	-.599	-.565	-.509	-.533	-.557	-.606	-.623	-.654	-.690	-.784
	.500	-.677	-.653	-.638	-.604	-.611	-.603	-.583	-.549	-.565	-.573	-.596	-.604	-.613	-.623	-.683
	.600	-.528	-.535	-.541	-.529	-.564	-.573	-.565	-.544	-.559	-.554	-.566	-.549	-.532	-.521	-.546
	.700	-.336	-.382	-.415	-.432	-.482	-.527	-.522	-.519	-.525	-.511	-.504	-.461	-.430	-.388	-.380
	.800	-.102	-.133	-.180	-.240	-.324	-.370	-.406	-.451	-.445	-.380	-.344	-.295	-.224	-.148	-.127
	.900	-.043	.028	.072	.095	.024	-.061	-.083	-.124	-.116	-.068	-.016	.063	.101	.075	-.015
	.950	-.043	.028	.090	.162	.200	.169	.142	.088	.104	.149	.195	.196	.154	.088	-.010
Lower surface	.0375	.753	.591	.442	.298	.128	-.035	-.184	-.419	-.325	-.130	.048	.185	.337	.502	.662
	.075	.522	.382	.253	.142	.006	-.107	-.224	-.389	-.325	-.179	-.047	.056	.175	.306	.440
	.150	.320	.200	.103	.021	-.080	-.163	-.242	-.353	-.310	-.207	-.115	-.044	.045	.142	.243
	.250	.166	.071	-.002	-.061	-.137	-.199	-.251	-.331	-.299	-.222	-.160	-.110	-.045	.030	.106
	.350	.064	-.014	-.080	-.123	-.177	-.225	-.260	-.318	-.296	-.241	-.194	-.154	-.105	-.046	.005
	.450	-.021	-.085	-.137	-.170	-.212	-.245	-.275	-.315	-.302	-.257	-.221	-.195	-.159	-.112	-.076
	.550	-.112	-.163	-.202	-.217	-.252	-.268	-.291	-.318	-.313	-.272	-.248	-.239	-.216	-.174	-.147
	.650	-.171	-.210	-.237	-.237	-.252	-.251	-.263	-.274	-.273	-.253	-.241	-.247	-.236	-.210	-.207
	.750	-.214	-.243	-.254	-.233	-.227	-.212	-.211	-.195	-.202	-.201	-.211	-.224	-.236	-.232	-.249
	.850	-.187	-.195	-.193	-.162	-.094	-.051	-.035	.012	-.007	-.027	-.061	-.106	-.171	-.183	-.207
	.925	-.139	-.133	-.080	-.002	.057	.116	.148	.203	.184	.149	.093	.038	-.012	-.090	-.157
	.975	-.095	-.062	-.015	.076	.179	a.190	.279	.295	.298	.279	.222	.148	.053	-.018	.091
	1.000	b-.070	b0	b.013	b.104	b.252	b.229	a.450	a.333	a.360	a.350	b.320	b.205	a.189	b.024	a-.010

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

TABLE 2.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-316.25 PROPELLER BLADE SECTION ($x = 0.30$) - Continued

(b) $N = 1350$ rpm; $\beta_{0.75R} = 45°$.

J	1.696	1.792	1.884	1.999	2.099	2.205	2.308	2.405	2.541	2.484	2.385	2.288	2.178	2.069	1.954	1.850	1.750
M_x	.396	.412	.427	.449	.469	.489	.508	.526	.552	.542	.521	.503	.480	.464	.439	.420	.404
$\alpha_x{}'$	7.85	6.53	5.36	4.03	2.97	1.93	1.00	.19	-.86	-.43	.35	1.18	2.19	3.28	4.54	5.78	7.09
$\Delta\beta$	.04	.03	.03	.02	.02	.02	.01	.00	.00	.00	.00	.01	.02	.02	.02	.03	.03
α_1	1.56	1.32	1.13	.95	.80	.67	.60	.48	.31	.38	.49	.61	.71	.85	.99	1.21	1.46
c_n	.6439	.5509	.4760	.4046	.3439	.2906	.2635	.2110	.1384	.1681	.2152	.2674	.3068	.3652	.4198	.5090	.6058
c_m	.0309	.0268	.0164	.0007	-.0095	-.0268	-.0438	-.0569	-.0740	-.0671	-.0548	-.0396	-.0230	-.0020	.0091	.0208	.0293
c_c																	

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.040	1.043	1.047	1.052	1.057	1.061	1.066	1.071	1.078	1.075	1.069	1.064	1.060	1.056	1.050	1.045	1.042
.025	-1.750	-1.429	-1.109	-.788	-.545	-.319	-.159	-.004	.191	.108	-.030	-.192	-.340	-.619	-.911	-1.243	-1.572
.050	-1.620	-1.374	-1.138	-.896	-.714	-.536	-.405	-.269	-.107	-.179	-.298	-.428	-.545	-.766	-.990	-1.236	-1.479
.100	-1.241	-1.090	-.966	-.808	-.689	-.571	-.484	-.385	-.270	-.322	-.407	-.501	-.565	-.719	-.867	-1.018	-1.151
.200	-1.005	-.922	-.832	-.740	-.668	-.597	-.552	-.484	-.408	-.440	-.493	-.554	-.576	-.683	-.776	-.863	-.958
.300	-.894	-.840	-.777	-.714	-.668	-.622	-.590	-.551	-.495	-.519	-.555	-.597	-.597	-.674	-.734	-.800	-.866
.400	-.777	-.741	-.704	-.662	-.638	-.612	-.595	-.573	-.539	-.553	-.575	-.602	-.581	-.638	-.672	-.718	-.762
.500	-.669	-.655	-.641	-.618	-.616	-.607	-.600	-.595	-.580	-.585	-.593	-.605	-.571	-.608	-.623	-.638	-.663
.600	-.526	-.522	-.535	-.536	-.545	-.561	-.569	-.573	-.570	-.570	-.566	-.573	-.524	-.530	-.531	-.529	-.530
.700	-.334	-.371	-.402	-.428	-.453	-.478	-.514	-.531	-.535	-.530	-.521	-.515	-.438	-.435	-.413	-.380	-.356
.800	-.091	-.112	-.157	-.214	-.263	-.309	-.344	-.381	-.442	-.410	-.362	-.342	-.270	-.240	-.184	-.126	-.103
.900	-.017	.028	.079	.107	.098	.029	-.026	-.076	-.111	-.093	-.057	-.023	.080	.130	.103	.062	.008
.950	-.017	.035	.098	.154	.179	.206	.178	.138	.100	.116	.152	.179	.251	.175	.134	.069	.008
Lower surface																	
.0375	.648	.583	.465	.317	.185	.039	-.078	-.224	-.421	-.331	-.184	-.057	.119	.239	.384	.521	.632
.075	.469	.374	.276	.160	.052	-.057	-.142	-.255	-.396	-.333	-.225	-.129	.005	.094	.211	.323	.418
.150	.270	.197	.120	.034	-.046	-.125	-.187	-.264	-.363	-.320	-.244	-.178	-.065	-.012	.073	.161	.233
.250	.131	.070	.009	-.051	-.111	-.173	-.216	-.273	-.344	-.312	-.255	-.207	-.117	-.087	-.047	.043	.093
.350	.031	-.016	-.061	-.115	-.160	-.205	-.237	-.282	-.336	-.312	-.266	-.233	-.153	-.140	-.092	-.037	.004
.450	-.054	-.091	-.129	-.168	-.204	-.238	-.258	-.296	-.334	-.320	-.282	-.255	-.190	-.184	-.147	-.110	-.077
.550	-.142	-.166	-.195	-.220	-.247	-.274	-.282	-.311	-.342	-.329	-.303	-.284	-.223	-.234	-.212	-.175	-.160
.650	-.194	-.218	-.233	-.246	-.255	-.269	-.274	-.285	-.301	-.294	-.278	-.269	-.223	-.246	-.233	-.219	-.206
.750	-.235	-.248	-.246	-.246	-.244	-.243	-.228	-.224	-.220	-.224	-.221	-.231	-.203	-.240	-.245	-.245	-.245
.850	-.198	-.201	-.188	-.151	-.117	-.092	-.059	-.036	-.007	-.023	-.039	-.067	-.047	-.126	-.175	-.189	-.199
.925	-.150	-.132	-.061	-.024	.014	.065	.117	.161	.193	.176	.152	.107	.103	.005	-.034	-.096	-.145
.975	-.093	-.062	-.010	.186	.125	.201	.259	.286	.292	.288	.281	.249	.235	.108	.030	-.033	-.081
1.000	[b]-.052	[b]-.017	[b].010	[b].349	[b].200	[b].315	[b].330	[b].350	[a].334	[a].334	[a].349	[b].335	[b].334	[b].180	[b].048	[b].010	[a]0

[a]Faired value.
[b]Lower surface only.

NACA

CONFIDENTIAL

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–316.25 PROPELLER BLADE SECTION (x = 0.30) — Continued

(c) N = 1500 rpm; $\beta_{0.75R}$ = 45°.

	J	1.963	2.015	2.118	2.197	2.284	2.374	2.467	2.534	2.501	2.426	2.335	2.242	2.169	2.092	2.006
	M_x	.492	.506	.525	.543	.560	.581	.601	.616	.607	.589	.569	.550	.534	.519	.501
	α_x'	4.45	3.87	2.79	2.02	1.22	.45	−.29	−.80	−.55	.03	.78	1.60	2.29	3.05	3.97
	$\Delta\beta$	.03	.03	.02	.02	.01	0	0	0	0	0	.01	.01	.02	.02	.03
	α_1	1.03	.90	.77	.69	.61	.54	.42	.33	.35	.44	.57	.63	.73	.80	.95
	c_n	.4382	.3832	.3303	.2997	.2655	.2394	.1852	.1458	.1552	.1935	.2513	.2726	.3165	.3439	.4052
	c_m	.0094	.0023	−.0061	−.0182	−.0365	−.0528	−.0641	−.0732	−.0704	−.0610	−.0451	−.0304	−.0150	−.0048	.0056
	c_c															
	c/b							Pressure coefficient, P								
Upper surface	0.000	1.062	1.065	1.070	1.076	1.080	1.086	1.092	1.097	1.094	1.089	1.083	1.077	1.071	1.069	1.064
	.025	−.914	−.721	−.495	−.346	−.176	−.032	.107	.206	.167	.055	−.100	−.245	−.396	−.558	−.787
	.050	−1.014	−.878	−.691	−.571	−.433	−.309	−.186	−.097	−.135	−.239	−.369	−.492	−.614	−.743	−.918
	.100	−.899	−.819	−.691	−.609	−.518	−.428	−.337	−.273	−.299	−.375	−.471	−.555	−.636	−.720	−.835
	.200	−.807	−.769	−.682	−.630	−.578	−.522	−.464	−.424	−.440	−.492	−.552	−.602	−.647	−.699	−.768
	.300	−.767	−.752	−.688	−.656	−.622	−.587	−.547	−.525	−.533	−.569	−.609	−.640	−.662	−.699	−.743
	.400	−.699	−.707	−.659	−.639	−.624	−.606	−.578	−.571	−.574	−.597	−.619	−.636	−.643	−.665	−.685
	.500	−.645	−.664	−.633	−.622	−.622	−.621	−.607	−.613	−.612	−.623	−.627	−.627	−.623	−.633	−.637
	.600	−.545	−.576	−.557	−.571	−.582	−.592	−.589	−.602	−.596	−.599	−.594	−.584	−.566	−.555	−.550
	.700	−.420	−.466	−.459	−.467	−.514	−.543	−.546	−.562	−.553	−.552	−.540	−.503	−.462	−.455	−.433
	.800	−.183	−.255	−.270	−.292	−.331	−.363	−.390	−.443	−.419	−.386	−.355	−.324	−.281	−.255	−.216
	.900	.099	.088	.082	.050	0	−.049	−.077	−.106	−.089	−.071	−.033	.013	.066	.097	.099
	.950	.129	.150	.192	.207	.187	.157	.133	.106	.120	.137	.166	.196	.201	.177	.145
Lower surface	.0375	.384	.255	.151	.067	−.055	−.166	−.293	−.422	−.365	−.259	−.122	−.007	.103	.195	.315
	.075	.209	.105	.027	−.040	−.131	−.214	−.308	−.406	−.364	−.285	−.181	−.095	−.010	.058	.153
	.150	.069	−.017	−.071	−.114	−.180	−.237	−.303	−.374	−.344	−.291	−.217	−.155	−.093	−.045	.027
	.250	−.026	−.098	−.134	−.167	−.216	−.256	−.303	−.359	−.333	−.295	−.240	−.197	−.150	−.114	−.061
	.350	−.096	−.157	−.180	−.205	−.241	−.268	−.306	−.352	−.331	−.304	−.262	−.228	−.191	−.166	−.123
	.450	−.156	−.207	−.225	−.241	−.268	−.286	−.313	−.352	−.335	−.315	−.284	−.259	−.228	−.212	−.177
	.550	−.216	−.264	−.272	−.282	−.298	−.309	−.330	−.360	−.348	−.334	−.309	−.292	−.274	−.260	−.235
	.650	−.248	−.283	−.281	−.284	−.288	−.286	−.297	−.315	−.306	−.302	−.292	−.286	−.276	−.274	−.259
	.750	−.258	−.283	−.270	−.263	−.250	−.229	−.223	−.229	−.226	−.237	−.240	−.255	−.261	−.265	−.264
	.850	−.166	−.169	−.138	−.114	−.081	−.042	−.016	−.003	−.008	−.035	−.063	−.093	−.117	−.139	−.160
	.925	−.056	−.045	.004	.045	.098	.153	.185	.201	.194	.166	.127	.080	.033	−.001	−.041
	.975	.030	.067	.131	.186	.243	.280	.292	.288	.292	.284	.261	.225	.170	.113	.051
	1.000	a.089	a.120	a.255	a.286	a.320	a.334	a.335	a.315	a.323	a.326	a.417	a.415	a.330	a.200	a.112

[a] Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMICS CHARACTERISTICS OF AN

NACA 16–316.25 PROPELLER BLADE SECTION (x = 0.30).— Continued

(d) M = 0.56; $\beta_{0.75R}$ = 45°.

J	2.121	2.149	2.189	2.221	2.256	2.272	2.319	2.339	2.369	2.414	2.446	2.477	2.520
M_x	.616	.612	.613	.612	.610	.604	.608	.607	.606	.606	.605	.605	.601
α_x'	2.76	2.48	2.10	1.79	1.47	1.33	.92	.74	.49	.13	-.13	-.37	-.69
$\Delta\beta$	.2	.2	.2	.2	.1	.1	.1	.1	.1	.1	0	0	0
α_i	.75	.73	.69	.65	.59	.58	.56	.54	.52	.45	.41	.37	.31
c_n	.3255	.3132	.3010	.2835	.2558	.2532	.2471	.2371	.2297	.1984	.1813	.1623	.1384
c_m	-.0034	-.0058	-.0149	-.0167	-.0298	-.0326	-.0454	-.0517	-.0560	-.0626	-.0646	-.0691	-.0751
c_c													

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.098	1.096	1.097	1.097	1.096	1.094	1.096	1.095	1.094	1.094	1.094	1.094	1.093
.025	-.407	-.363	-.297	-.248	-.177	-.155	-.084	-.050	-.005	.061	.101	.142	.197
.050	-.666	-.621	-.562	-.518	-.453	-.435	-.367	-.336	-.296	-.233	-.198	-.158	-.108
.100	-.699	-.667	-.623	-.592	-.541	-.531	-.477	-.456	-.422	-.378	-.347	-.315	-.279
.200	-.719	-.695	-.665	-.645	-.610	-.607	-.566	-.555	-.529	-.501	-.478	-.452	-.426
.300	-.736	-.720	-.699	-.686	-.658	-.660	-.628	-.621	-.601	-.582	-.562	-.541	-.520
.400	-.703	-.694	-.681	-.671	-.656	-.662	-.639	-.637	-.621	-.612	-.596	-.581	-.566
.500	-.668	-.664	-.658	-.656	-.647	-.660	-.646	-.648	-.637	-.635	-.625	-.613	-.606
.600	-.575	-.581	-.593	-.597	-.596	-.612	-.605	-.612	-.607	-.610	-.601	-.595	-.593
.700	-.456	-.467	-.474	-.483	-.495	-.522	-.540	-.557	-.556	-.562	-.557	-.552	-.555
.800	-.240	-.262	-.279	-.294	-.308	-.331	-.349	-.365	-.370	-.389	-.397	-.410	-.441
.900	.105	.095	.072	.054	.039	.013	-.013	-.034	-.048	-.069	-.078	-.089	-.099
.950	.187	.197	.200	.204	.202	.190	.184	.167	.158	.142	.131	.122	.123
Lower surface													
.0375	.142	.104	.056	.017	-.032	-.069	-.111	-.150	-.185	-.262	-.297	-.339	-.415
.075	.014	-.012	-.051	-.082	-.117	-.148	-.175	-.207	-.230	-.289	-.315	-.342	-.399
.150	-.077	-.099	-.125	-.151	-.173	-.198	-.214	-.236	-.253	-.294	-.309	-.330	-.368
.250	-.142	-.158	-.179	-.197	-.212	-.234	-.241	-.258	-.267	-.299	-.309	-.324	-.353
.350	-.191	-.204	-.219	-.234	-.244	-.263	-.262	-.277	-.282	-.307	-.315	-.324	-.346
.450	-.236	-.246	-.258	-.269	-.274	-.290	-.285	-.297	-.300	-.319	-.324	-.330	-.346
.550	-.288	-.294	-.302	-.310	-.311	-.326	-.315	-.324	-.323	-.339	-.340	-.342	-.355
.650	-.301	-.305	-.305	-.311	-.306	-.317	-.299	-.302	-.298	-.307	-.306	-.305	-.313
.750	-.288	-.289	-.286	-.285	-.272	-.277	-.250	-.249	-.239	-.239	-.234	-.227	-.228
.850	-.149	-.143	-.132	-.125	-.103	-.103	-.067	-.059	-.043	-.035	-.025	-.016	-.008
.925	0	.012	.032	.047	.078	.083	.126	.138	.155	.169	.179	.192	.194
.975	.131	.148	.172	.193	.223	.226	.261	.267	.279	.283	.287	.295	.286
1.000	a.236	a.270	a.272	a.300	a.315	a.330	b.344	b.350	a.352	a.342	a.338	a.337	a.330

[a] Faired value.

[b] Lower surface only.

NACA

CONFIDENTIAL

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–316.25 PROPELLER BLADE SECTION (x = 0.30) — Continued

(e) $M = 0.60$; $\beta_{0.75R} = 45°$.

J	2.077	2.106	2.132	2.158	2.185	2.220	2.247	2.273	2.299	2.329	2.360	2.391	2.426	2.461	2.512
M_x	.662	.660	.659	.658	.657	.657	.656	.653	.652	.648	.647	.646	.647	.644	.644
α_x'	3.21	2.91	2.65	2.39	2.13	1.80	1.56	1.32	1.09	.83	.57	.31	.03	-.25	-.63
$\Delta\beta$	.02	.02	.02	.02	.02	.01	.01	.01	.01	.01	0	0	0	0	-.01
α_i	.80	.75	.71	.68	.63	.58	.54	.53	.50	.45	.45	.42	.40	.37	.29
c_n	.3445	.3226	.3058	.2942	.2710	.2523	.2348	.2332	.2184	.1974	.1961	.1835	.1755	.1642	.1271
c_m	.0088	.0046	.0008	-.0049	-.0064	-.0125	-.0170	-.0265	-.0291	-.0373	-.0400	-.0523	-.0613	-.0669	-.0711
c_c															

Pressure coefficient, P

c/b															
Upper surface															
0.000	1.114	1.113	1.113	1.113	1.112	1.112	1.112	1.111	1.111	1.109	1.109	1.109	1.109	1.108	1.108
.025	-.454	-.393	-.340	-.285	-.240	-.179	-.126	-.084	-.041	-.001	.028	.071	.123	.158	.220
.050	-.751	-.689	-.633	-.579	-.534	-.478	-.424	-.385	-.343	-.306	-.276	-.236	-.187	-.155	-.093
.100	-.794	-.746	-.702	-.660	-.626	-.581	-.537	-.508	-.473	-.445	-.420	-.389	-.353	-.326	-.276
.200	-.821	-.787	-.753	-.726	-.693	-.666	-.630	-.611	-.585	-.563	-.545	-.520	-.498	-.478	-.439
.300	-.839	-.813	-.786	-.763	-.738	-.721	-.691	-.678	-.657	-.641	-.623	-.609	-.638	-.631	-.544
.400	-.783	-.768	-.751	-.739	-.720	-.714	-.691	-.686	-.683	-.675	-.672	-.662	-.661	-.623	-.597
.500	-.721	-.719	-.711	-.707	-.695	-.695	-.682	-.683	-.675	-.672	-.662	-.661	-.662	-.658	-.641
.600	-.592	-.593	-.595	-.603	-.595	-.613	-.609	-.623	-.623	-.622	-.620	-.625	-.636	-.638	-.626
.700	-.451	-.453	-.461	-.476	-.460	-.486	-.490	-.516	-.530	-.542	-.546	-.466	-.583	-.589	-.582
.800	-.197	-.199	-.214	-.242	-.208	-.256	-.271	-.309	-.325	-.336	-.342	-.372	-.401	-.415	-.434
.900	.077	.076	.088	.099	.082	.080	.088	.052	.039	.027	.020	-.031	-.061	-.084	-.088
.950	.126	.125	.145	.171	.120	.156	.177	.191	.192	.184	.184	.170	.148	.133	.122
Lower surface															
.0375	.171	.130	.099	.064	.029	-.024	-.057	-.100	-.137	-.184	-.241	-.288	-.335	-.363	-.437
.075	.031	0	-.022	-.048	-.077	-.121	-.144	-.176	-.202	-.242	-.269	-.302	-.335	-.361	-.394
.150	-.076	-.097	-.112	-.133	-.151	-.185	-.198	-.223	-.257	-.268	-.290	-.294	-.310	-.354	-.378
.250	-.152	-.167	-.179	-.191	-.206	-.232	-.239	-.257	-.286	-.294	-.310	-.312	-.323	-.342	-.373
.350	-.209	-.221	-.226	-.239	-.248	-.269	-.273	-.286	-.294	-.319	-.334	-.332	-.339	-.352	-.373
.450	-.262	-.272	-.274	-.281	-.288	-.304	-.305	-.314	-.319	-.354	-.365	-.360	-.362	-.371	-.383
.550	-.327	-.331	-.332	-.335	-.339	-.351	-.347	-.352	-.354	-.340	-.347	-.338	-.334	-.335	-.338
.650	-.349	-.350	-.344	-.343	-.346	-.346	-.351	-.343	-.340	-.299	-.293	-.279	-.267	-.255	-.248
.750	-.348	-.344	-.332	-.324	-.325	-.322	-.308	-.299	-.291	-.116	-.099	-.094	-.078	-.057	-.013
.850	-.212	-.204	-.188	-.172	-.174	-.158	-.139	-.116	-.099	.104	.119	.149	.169	.181	.192
.925	-.066	-.056	-.033	-.008	-.016	.014	.040	.075	.094	.211	.229	.231	.241	.265	.274
.975	.045	.065	.092	.123	.109	.148	.174	.211	.229	.231	.241	.265	.274	.278	.274
1.000	b.090	a.125	b.161	a.207	b.173	b.219	a.240	b.290	b.305	a.304	b.310	b.311	a.315	a.325	a.307

a Faired value.
b Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 2.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–316.25 PROPELLER BLADE SECTION (x = 0.30) — Concluded

(f) M = 0.65; $\beta_{0.75R}$ = 45°

	J	2.129	2.162	2.179	2.198	2.220	2.248	2.268	2.283	2.319	2.338	2.359	2.389	2.413	2.433
	M_x	.722	.720	.717	.714	.713	.711	.710	.706	.708	.704	.701	.702	.699	.698
	α_x'	2.68	2.35	2.19	2.01	1.80	1.55	1.37	1.23	.92	.75	.58	.33	.13	−.02
	$\Delta\beta$	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	α_i	.69	.64	.63	.61	.57	.52	.48	.43	.41	.39	.39	.34	.28	.23
	c_n	.2987	.2761	.2742	.2639	.2471	.2252	.2097	.1871	.1781	.1703	.1703	.1477	.1252	.1032
	c_m	.0113	−.0011	−.0013	−.0020	−.0074	−.0092	−.0123	−.0141	−.0184	−.0213	−.0287	−.0287	−.0349	−.0354
	c_c														
	c/b	Pressure coefficient, P													
Upper surface	0.000	1.138	1.137	1.136	1.135	1.134	1.133	1.133	1.131	1.132	1.130	1.129	1.129	1.128	1.128
	.025	−.209	−.140	−.133	−.112	−.086	−.047	−.015	.015	.054	.079	.103	.138	.168	.192
	.050	−.541	−.470	−.461	−.438	−.411	−.370	−.338	−.306	−.267	−.242	−.217	−.181	−.151	−.130
	.100	−.659	−.600	−.595	−.574	−.554	−.520	−.491	−.468	−.435	−.412	−.392	−.362	−.335	−.317
	.200	−.783	−.728	−.725	−.705	−.688	−.657	−.633	−.610	−.582	−.562	−.546	−.523	−.499	−.486
	.300	−.881	−.832	−.834	−.813	−.792	−.766	−.741	−.715	−.691	−.671	−.657	−.638	−.616	−.605
	.400	−.890	−.836	−.833	−.810	−.795	−.776	−.758	−.737	−.718	−.703	−.693	−.682	−.662	−.656
	.500	−.801	−.778	−.782	−.770	−.765	−.756	−.748	−.736	−.724	−.717	−.716	−.714	−.701	−.700
	.600	−.626	−.621	−.633	−.630	−.636	−.640	−.639	−.635	−.636	−.636	−.642	−.650	−.642	−.646
	.700	−.459	−.460	−.475	−.475	−.481	−.487	−.488	−.491	−.498	−.507	−.523	−.542	−.545	−.552
	.800	−.206	−.207	−.226	−.229	−.235	−.245	−.246	−.248	−.252	−.258	−.268	−.283	−.288	−.295
	.900	.107	.114	.111	.114	.113	.115	.120	.126	.134	.136	.134	.128	.133	.130
	.950	.149	.170	.170	.172	.170	.164	.164	.162	.170	.165	.158	.151	.156	.153
Lower surface	.0375	.080	.030	.009	−.011	−.038	−.085	−.114	−.145	−.176	−.203	−.237	−.279	−.310	−.348
	.075	−.025	−.068	−.090	−.108	−.111	−.160	−.182	−.201	−.229	−.259	−.285	−.310	−.319	−.355
	.150	−.129	−.155	−.169	−.180	−.195	−.223	−.239	−.257	−.271	−.284	−.304	−.325	−.339	−.361
	.250	−.200	−.217	−.229	−.237	−.252	−.270	−.283	−.295	−.304	−.313	−.326	−.343	−.350	−.367
	.350	−.255	−.265	−.277	−.278	−.289	−.307	−.316	−.323	−.329	−.335	−.344	−.354	−.358	−.373
	.450	−.307	−.314	−.324	−.327	−.334	−.347	−.354	−.361	−.359	−.362	−.368	−.375	−.376	−.389
	.550	−.377	−.380	−.387	−.386	−.391	−.402	−.405	−.408	−.406	−.404	−.406	−.407	−.404	−.414
	.650	−.393	−.388	−.393	−.391	−.391	−.399	−.397	−.398	−.391	−.386	−.383	−.378	−.370	−.378
	.750	−.376	−.369	−.367	−.361	−.357	−.359	−.354	−.349	−.336	−.328	−.320	−.309	−.297	−.302
	.850	−.317	−.183	−.189	−.179	−.175	−.167	−.159	−.152	−.137	−.128	−.118	−.107	−.092	−.095
	.925	−.043	−.015	−.008	.003	.011	.021	.031	.040	.053	.061	.065	.074	.083	.081
	.975	.086	.120	[a].140	.140	.147	.155	.160	.167	.176	.179	[b].180	.179	.183	.178
	1.000	[a].158	[a].188	[a].240	[a].260	[a].230	[a].220	[a].225	[a].240	[a].230	[a].230	[b].226	[b].222	[b].235	[b].223

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 3.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-310.00 PROPELLER BLADE SECTION (x = 0.45)

(a) N = 1140 rpm; $\beta_{0.75R} = 45°$.

J	1.620	1.738	1.858	1.986	2.098	2.199	2.340	2.443	2.568	2.516	2.401	2.270	2.158	2.060	1.929	1.783	1.700
M_x	.366	.382	.401	.417	.435	.448	.468	.483	.504	.496	.478	.457	.441	.431	.410	.390	.376
$\alpha_x{}'$	10.41	8.42	6.57	4.74	3.27	2.04	.44	-.64	-1.87	-1.37	-.21	1.21	2.53	3.76	5.54	7.71	9.05
$\Delta\beta$	.15	.13	.11	.10	.08	.06	.04	.03	-.01	.01	.03	.05	.07	.09	.10	.12	.14
α_i	2.44	2.05	1.71	1.34	1.08	.87	.58	.40	.18	.28	.47	.71	.97	1.13	1.52	1.90	2.21
c_n	.9830	.8291	.7026	.5532	.4523	.3635	.2452	.1703	.0765	.1187	.1997	.3003	.4042	.4703	.6269	.7750	.8980
c_m	-.0007	-.0180	-.0195	-.0182	-.0226	-.0338	-.0434	-.0526	-.0582	-.0559	-.0470	-.0407	-.0294	-.0226	-.0190	-.0190	-.0080
c_c																	

	c/b								Pressure coefficient, P									
Upper surface	0.000	1.034	1.037	1.041	1.045	1.049	1.052	1.056	1.060	1.065	1.063	1.059	1.054	1.050	1.048	1.043	1.039	1.036
	.025	-2.649	-2.126	-1.613	-1.154	-.783	-.500	-.178	.032	.243	.153	-.065	-.325	-.626	-.896	-1.328	-1.867	-2.803
	.050	-2.635	-1.737	-1.410	-1.051	-.783	-.575	-.329	-.160	.017	-.062	-.238	-.446	-.673	-.865	-1.218	-1.591	-2.287
	.100	-2.131	-1.275	-1.050	-.818	-.659	-.526	-.356	-.237	-.108	-.163	-.291	-.437	-.590	-.700	-.934	-1.185	-1.414
	.200	-1.059	-.956	-.824	-.676	-.572	-.505	-.397	-.319	-.230	-.270	-.354	-.451	-.542	-.599	-.748	-.905	-.970
	.300	-.866	-.824	-.733	-.629	-.554	-.500	-.421	-.368	-.297	-.329	-.391	-.465	-.527	-.571	-.679	-.793	-.828
	.400	-.752	-.715	-.657	-.579	-.526	-.482	-.424	-.386	-.333	-.356	-.402	-.460	-.509	-.536	-.616	-.698	-.712
	.500	-.639	-.621	-.585	-.529	-.495	-.470	-.429	-.401	-.367	-.383	-.412	-.454	-.485	-.499	-.555	-.616	-.613
	.600	-.555	-.555	-.534	-.499	-.482	-.473	-.448	-.432	-.410	-.420	-.436	-.465	-.482	-.480	-.513	-.555	-.538
	.700	-.412	-.420	-.418	-.400	-.399	-.400	-.397	-.391	-.381	-.386	-.391	-.409	-.401	-.391	-.396	-.427	-.399
	.800	-.240	-.244	-.252	-.254	-.269	-.292	-.297	-.319	-.314	-.319	-.302	-.299	-.284	-.256	-.250	-.258	-.224
	.900	-.058	-.026	.002	.012	.004	-.027	-.045	-.065	-.079	-.075	-.052	-.041	-.017	.013	.012	-.020	-.018
	.950	-.012	.020	.074	.108	.121	.125	.115	.094	.075	.083	.109	.117	.123	.120	.092	.044	.021

	c/b																	
Lower surface	.0375	.841	.778	.661	.484	.313	.163	-.064	-.247	-.468	-.366	-.154	.041	.228	.379	.579	.726	.814
	.075	.648	.585	.481	.330	.202	.087	-.075	-.201	-.350	-.282	-.136	-.001	.135	.249	.407	.529	.620
	.150	.462	.405	.321	.211	.115	.037	-.075	-.160	-.242	-.208	-.117	-.026	.067	.151	.268	.364	.442
	.250	.320	.265	.205	.118	.044	-.015	-.096	-.155	-.216	-.186	-.125	-.063	.007	.073	.165	.236	.299
	.350	.222	.187	.136	.065	.007	-.039	-.102	-.145	-.194	-.171	-.123	-.077	-.023	.032	.102	.161	.215
	.450	.148	.117	.078	.022	-.027	-.062	-.113	-.145	-.184	-.163	-.125	-.091	-.047	-.006	.054	.097	.144
	.550	.080	.063	.032	-.021	-.055	-.079	-.118	-.145	-.175	-.158	-.133	-.105	-.071	-.038	.012	.040	.085
	.650	.008	-.003	-.026	-.061	-.089	-.103	-.134	-.147	-.168	-.158	-.138	-.122	-.101	-.076	-.036	-.020	.021
	.750	-.030	-.031	-.042	-.068	-.083	-.088	-.107	-.111	-.120	-.116	-.109	-.102	-.092	-.076	-.050	-.040	-.010
	.850	-.042	-.031	-.034	-.052	-.058	-.050	-.050	-.039	-.033	-.035	-.044	-.057	-.056	-.050	-.039	-.040	-.018
	.925	-.022	.005	.006	.005	.010	.037	.050	.066	.080	.076	.056	.047	.022	.006	.005	-.001	.013
	.975	-.012	.012	.006	.018	.044	.087	.120	.153	.176	.167	.133	.103	.064	.035	.012	-.001	.026
	1.000	[a]0	[b].019	[b].005	[b].030	[b].055	[b].110	[b].144	[a].207	[a].233	[a].224	[b].176	[b].128	[b].085	[b].054	[b].019	[b].001	[a].030

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 3.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-310.00 PROPELLER BLADE SECTION (x = 0.45) - Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

	J	1.781	1.866	1.950	2.035	2.119	2.197	2.294	2.427	2.558	2.491	2.362	2.268	2.172	2.094	1.991	1.917	1.847
	M_x	.465	.476	.492	.508	.521	.533	.550	.573	.598	.585	.559	.542	.526	.515	.497	.483	.472
	α_x'	7.74	6.45	5.24	4.09	3.01	2.06	.94	-.48	-1.77	-1.12	.20	1.24	2.36	3.32	4.68	5.71	6.73
	$\Delta\beta$	.20	.18	.15	.13	.11	.10	.08	.04	-.01	.01	.06	.09	.11	.12	.14	.16	.18
	α_1	1.94	1.74	1.53	1.26	1.05	.91	.67	.42	.13	.30	.56	.76	.98	1.11	1.37	1.60	1.81
	c_n	.7933	.7157	.6334	.5245	.4394	.3823	.2848	.1787	.0565	.1265	.2365	.3194	.4123	.4645	.5696	.6582	.7427
	c_m	-.0136	-.0145	-.0181	-.0190	-.0216	-.0336	-.0435	-.0513	-.0559	-.0547	-.0460	-.0410	-.0323	-.0236	-.0171	-.0154	-.0151
	c_c																	
	c/b								Pressure coefficient, P									
Upper surface	0.000	1.055	1.058	1.062	1.066	1.069	1.073	1.078	1.085	1.092	1.088	1.080	1.075	1.071	1.068	1.063	1.060	1.057
	.025	-2.004	-1.582	-1.403	-1.010	-.747	-.502	-.246	.043	.133	.158	-.091	-.323	-.579	-.814	-1.160	-1.417	-1.672
	.050	-1.636	-1.442	-1.207	-.974	-.784	-.601	-.400	-.163	-.108	-.065	-.272	-.462	-.654	-.832	-1.085	-1.285	-1.500
	.100	-1.227	-1.088	-.934	-.773	-.661	-.550	-.412	-.245	-.243	-.170	-.321	-.456	-.583	-.691	-.845	-.984	-1.124
	.200	-.929	-.851	-.751	-.659	-.586	-.531	-.439	-.330	-.365	-.273	-.381	-.468	-.541	-.606	-.708	-.783	-.866
	.300	-.807	-.757	-.685	-.621	-.568	-.531	-.464	-.389	-.453	-.344	-.421	-.485	-.532	-.582	-.659	-.706	-.761
	.400	-.702	-.670	-.618	-.574	-.539	-.511	-.464	-.412	-.499	-.378	-.431	-.481	-.512	-.550	-.602	-.634	-.672
	.500	-.608	-.594	-.561	-.531	-.512	-.498	-.464	-.432	-.539	-.409	-.442	-.477	-.494	-.515	-.555	-.570	-.591
	.600	-.542	-.541	-.520	-.503	-.498	-.502	-.480	-.461	-.590	-.448	-.466	-.489	-.494	-.499	-.523	-.525	-.532
	.700	-.392	-.410	-.395	-.394	-.403	-.415	-.412	-.412	-.548	-.401	-.405	-.416	-.401	-.397	-.407	-.400	-.396
	.800	-.202	-.226	-.227	-.235	-.253	-.286	-.288	-.311	-.462	-.310	-.294	-.295	-.266	-.249	-.241	-.222	-.212
	.900	.016	.026	.041	.040	.030	.002	-.012	-.035	-.194	-.034	-.020	-.012	.020	.033	.034	.038	.027
	.950	.055	.088	.112	.128	.141	.144	.143	.125	-.033	.128	.137	.142	.149	.137	.113	.102	.081
Lower surface	.0375	[a].711	.662	.564	.432	.311	.168	.009	-.241	-.667	-.356	-.111	.060	.229	.346	.479	.604	.702
	.075	.572	.481	.400	.294	.200	.091	-.022	-.198	-.533	-.273	-.107	.015	.140	.225	.328	.432	.516
	.150	.403	.326	.267	.185	.118	.039	-.035	-.151	-.409	-.197	-.091	-.012	.074	.135	.210	.293	.360
	.250	.271	.211	.162	.100	.046	-.014	-.066	-.151	-.382	-.182	-.107	-.050	.016	.061	.118	.185	.239
	.350	.191	.142	.104	.052	.010	-.035	-.076	-.144	-.360	-.167	-.107	-.067	-.011	.022	.064	.120	.164
	.450	.124	.084	.055	.012	-.024	-.062	-.091	-.144	-.349	-.161	-.117	-.080	-.042	-.015	.020	.069	.102
	.550	.066	.031	.011	-.024	-.052	-.081	-.101	-.144	-.334	-.155	-.121	-.097	-.062	-.045	-.020	.020	.049
	.650	.005	-.021	-.038	-.066	-.086	-.107	-.122	-.151	-.331	-.157	-.135	-.118	-.091	-.082	-.069	-.031	-.005
	.750	-.022	-.043	-.052	-.071	-.081	-.092	-.097	-.112	-.278	-.114	-.103	-.095	-.079	-.078	-.074	-.045	-.027
	.850	-.027	-.043	-.038	-.050	-.049	-.053	-.039	-.039	-.188	-.031	-.038	-.042	-.044	-.052	-.057	-.036	-.027
	.925	.005	.005	.011	.009	.021	.039	.056	.070	-.071	.079	.063	.051	.038	.019	0	.012	.013
	.975	-.014	-.005	.016	.028	.048	.080	.116	.152	.009	.162	.139	.106	.071	.043	.015	.012	0
	1.000	[b]-.054	[b]-.010	[b].019	[b].038	[b].055	[b].104	[b].147	[b].188	[a].046	[b].200	[b].175	[b].135	[b].085	[b].054	[b].021	[b].019	[b]-.010

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—310.00 PROPELLER BLADE SECTION (x = 0.45) — Continued

(c) N = 1500 rpm; $\beta_{0.75R} = 45°$.

J	1.930	2.007	2.063	2.147	2.226	2.295	2.377	2.445	2.536	2.503	2.465	2.422	2.391	2.353	2.318	2.275	2.114	2.051	1.984
M_x	.540	.557	.567	.583	.601	.612	.628	.642	.661	.655	.647	.636	.630	.622	.616	.609	.575	.562	.547
α_x'	5.52	4.46	3.72	2.66	1.72	.93	.04	-.66	-1.56	-1.24	-.87	-.43	-.10	.30	.68	1.16	3.07	3.88	4.77
$\Delta\beta$	.25	.21	.18	.14	.10	.07	.04	0	-.04	-.03	-.01	.01	.03	.05	.06	.08	.15	.18	.22
α_i	1.61	1.37	1.19	1.04	.89	.74	.57	.38	.18	.25	.34	.43	.51	.60	.69	.78	1.11	1.25	1.47
c_n	.6661	.5697	.4955	.4368	.3742	.3139	.2406	.1635	.0768	.1077	.1468	.1848	.2187	.2565	.2926	.3277	.4639	.5194	.6086
c_m	-.0199	-.0177	-.0247	-.0290	-.0366	-.0415	-.0455	-.0479	-.0577	-.0546	-.0520	-.0472	-.0465	-.0437	-.0418	-.0420	-.0261	-.0228	-.0169
c_c																			

Pressure coefficient, P

Upper surface

c/b																			
0.000	1.075	1.079	1.082	1.087	1.093	1.096	1.102	1.107	1.114	1.112	1.109	1.105	1.102	1.100	1.098	1.095	1.085	1.081	1.077
.025	-1.677	-1.194	-.941	-.677	-.446	-.252	-.069	.090	.265	.209	.133	.047	-.027	-.109	-.200	-.307	-.789	-1.028	-1.345
.050	-1.370	-1.137	-.959	-.760	-.578	-.423	-.273	-.140	.014	-.035	-.102	-.175	-.241	-.309	-.381	-.471	-.843	-1.018	-1.237
.100	-1.055	-.883	-.786	-.666	-.547	-.443	-.335	-.239	-.120	-.158	-.211	-.265	-.312	-.359	-.409	-.475	-.719	-.819	-.949
.200	-.844	-.745	-.683	-.613	-.544	-.478	-.403	-.338	-.253	-.280	-.318	-.357	-.389	-.420	-.454	-.501	-.642	-.704	-.786
.300	-.763	-.695	-.658	-.600	-.554	-.507	-.457	-.413	-.349	-.366	-.396	-.424	-.444	-.467	-.489	-.526	-.623	-.666	-.726
.400	-.682	-.634	-.611	-.571	-.538	-.507	-.470	-.444	-.398	-.409	-.434	-.450	-.465	-.477	-.491	-.523	-.588	-.616	-.660
.500	-.611	-.580	-.569	-.545	-.527	-.507	-.484	-.469	-.440	-.446	-.465	-.473	-.480	-.487	-.496	-.521	-.553	-.569	-.599
.600	-.561	-.541	-.544	-.536	-.531	-.523	-.511	-.508	-.496	-.497	-.507	-.510	-.510	-.511	-.512	-.531	-.536	-.539	-.558
.700	-.424	-.418	-.428	-.430	-.438	-.443	-.438	-.443	-.443	-.439	-.445	-.443	-.439	-.439	-.435	-.448	-.428	-.419	-.426
.800	-.230	-.238	-.259	-.272	-.295	-.304	-.308	-.321	-.335	-.326	-.328	-.321	-.312	-.309	-.301	-.309	-.264	-.246	-.241
.900	.027	.035	.030	.028	.012	-.001	-.010	-.018	-.033	-.024	-.024	-.020	-.012	-.008	-.002	-.005	.029	.034	.032
.950	.081	.101	.113	.133	.146	.144	.138	.134	.129	.137	.133	.134	.139	.141	.148	.136	.126	.112	.090

Lower surface

c/b																			
.0375	.588	.469	.368	.254	.128	.002	-.145	-.312	-.521	-.435	-.359	-.265	-.182	-.107	-.030	.031	.307	.410	.509
.075	.418	.322	.239	.154	.061	-.031	-.133	-.254	-.398	-.337	-.286	-.218	-.162	-.107	-.050	-.012	.191	.275	.355
.150	.279	.204	.142	.083	.019	-.045	-.113	-.192	-.277	-.241	-.214	-.172	-.133	-.097	-.057	-.033	.110	.171	.225
.250	.168	.110	.062	.017	-.028	-.076	-.128	-.187	-.252	-.222	-.200	-.172	-.142	-.114	-.085	-.069	.035	.084	.126
.350	.104	.057	.017	-.017	-.054	-.089	-.130	-.179	-.230	-.205	-.188	-.165	-.142	-.119	-.096	-.087	-.002	.036	.072
.450	.052	.011	-.023	-.047	-.075	-.103	-.137	-.177	-.217	-.197	-.185	-.165	-.147	-.128	-.106	-.103	-.036	-.008	.021
.550	.002	-.028	-.058	-.076	-.094	-.115	-.143	-.177	-.208	-.190	-.184	-.167	-.153	-.136	-.120	-.138	-.106	-.087	-.072
.650	-.052	-.074	-.099	-.108	-.121	-.136	-.157	-.184	-.202	-.190	-.185	-.177	-.164	-.152	-.138	-.138	-.106	-.091	-.082
.750	-.066	-.082	-.101	-.100	-.103	-.110	-.123	-.140	-.145	-.138	-.141	-.135	-.128	-.119	-.110	-.115	-.102	-.091	-.082
.850	-.058	-.064	-.076	-.064	-.056	-.052	-.054	-.061	-.051	-.047	-.055	-.059	-.056	-.052	-.050	-.060	-.071	-.067	-.066
.925	-.008	-.010	-.009	.013	.032	.041	.047	.046	.065	.065	.052	.047	.047	.047	.047	.035	.002	-.008	-.014
.975	-.013	-.002	.011	.041	.077	.101	.118	.119	.143	.142	.127	.121	.121	.119	.110	.090	.027	.008	-.012
1.000	[b]-.015	[b]-.001	[b].021	[b].059	[b].095	[b].126	[b].151	[b].149	[b].175	[b].175	[b].161	[b].154	[b].156	[b].150	[b].140	[b].114	[b].033	[b].018	[b]-.016

[b] Lower surface only.

NACA

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-310.00 PROPELLER BLADE SECTION (x = 0.45) — Continued

(d) N = 1600 rpm; $\beta_{0.75R} = 45°$.

J	2.045	2.134	2.214	2.276	2.350	2.427	2.483	2.511	2.457	2.394	2.313	2.249	2.179	2.115
M_x	.604	.621	.637	.650	.663	.682	.694	.701	.688	.673	.654	.640	.627	.616
$\alpha_x{'}$	3.96	2.82	1.86	1.15	.33	−.48	−1.05	−1.32	−.79	−.14	.72	1.45	2.27	3.06
$\Delta\beta$	.19	.17	.14	.11	.07	.03	−.01	−.03	.01	.05	.09	.12	.15	.17
α_1	1.32	1.12	.95	.79	.61	.43	.30	.23	.37	.53	.70	.87	1.04	1.17
c_n	.5477	.4697	.4006	.3326	.2597	.1839	.1274	.0965	.1555	.2248	.2942	.3658	.4355	.4897
c_m	−.0198	−.0262	−.0361	−.0436	−.0469	−.0551	−.0601	−.0607	−.0583	−.0497	−.0455	−.0394	−.0320	−.0244
c_c														

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.094	1.099	1.105	1.110	1.115	1.122	1.127	1.130	1.124	1.118	1.111	1.107	1.102	1.098
.025	−1.039	−.720	−.481	−.287	−.098	.086	.201	.256	.146	−.007	−.183	−.366	−.587	−.799
.050	−1.066	−.820	−.626	−.470	−.311	−.149	−.047	.001	−.097	−.229	−.384	−.532	−.713	−.876
.100	−.858	−.717	−.588	−.486	−.373	−.255	−.175	−.140	−.215	−.312	−.427	−.528	−.648	−.749
.200	−.743	−.655	−.582	−.523	−.451	−.370	−.311	−.281	−.340	−.409	−.488	−.545	−.621	−.672
.300	−.707	−.641	−.592	−.557	−.503	−.447	−.405	−.383	−.425	−.470	−.529	−.568	−.618	−.651
.400	−.653	−.610	−.575	−.554	−.517	−.481	−.454	−.441	−.469	−.493	−.537	−.558	−.594	−.612
.500	−.599	−.574	−.553	−.547	−.525	−.507	−.490	−.485	−.498	−.509	−.538	−.545	−.567	−.574
.600	−.563	−.555	−.553	−.559	−.547	−.548	−.543	−.546	−.546	−.541	−.558	−.555	−.560	−.553
.700	−.431	−.438	−.449	−.463	−.465	−.475	−.479	−.482	−.479	−.464	−.470	−.453	−.450	−.432
.800	−.242	−.262	−.285	−.307	−.314	−.335	−.346	−.350	−.340	−.315	−.316	−.295	−.279	−.256
.900	.040	.041	.030	.011	−.001	−.016	−.019	−.022	−.018	−.005	.001	.020	.033	.045
.950	.105	.130	.149	.148	.147	.141	.140	.136	.138	.147	.143	.151	.138	.129
Lower surface														
.0375	.404	.275	.159	.024	−.120	−.297	−.435	−.517	−.369	−.192	−.054	.087	.210	.316
.075	.268	.171	.083	−.016	−.120	−.247	−.343	−.400	−.297	−.171	−.075	.030	.120	.202
.150	.162	.094	.036	−.037	−.108	−.188	−.249	−.284	−.224	−.140	−.080	−.003	.054	.118
.250	.078	.027	−.018	−.075	−.126	−.185	−.231	−.258	−.209	−.148	−.105	−.046	−.002	.045
.350	.029	−.011	−.043	−.091	−.134	−.178	−.217	−.240	−.199	−.148	−.118	−.067	−.033	.005
.450	−.014	−.044	−.070	−.108	−.142	−.178	−.209	−.230	−.196	−.154	−.129	−.088	−.062	−.032
.550	−.054	−.073	−.089	−.125	−.153	−.179	−.203	−.220	−.194	−.159	−.142	−.105	−.085	−.064
.650	−.098	−.111	−.119	−.147	−.168	−.185	−.203	−.214	−.196	−.171	−.160	−.131	−.119	−.102
.750	−.104	−.104	−.103	−.121	−.134	−.142	−.147	−.156	−.146	−.131	−.131	−.110	−.106	−.100
.850	−.082	−.070	−.056	−.063	−.064	−.054	−.053	−.057	−.057	−.054	−.066	−.059	−.065	−.067
.925	−.016	.006	.030	.034	.043	.059	.063	.062	.059	.053	.035	.033	.016	.003
.975	−.005	.030	.066	.088	.118	.142	.145	.141	.141	.133	.098	.082	.047	.027
1.000	b−.003	b.041	b.081	b.115	b.150	b.184	b.187	b.179	b.185	b.174	b.130	b.112	b.061	b.034

bLower surface only.

NACA

CONFIDENTIAL

TABLE 3.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-310.00 PROPELLER BLADE SECTION (x = 0.45) - Continued

(e) M = 0.56; $\beta_{0.75R}$ = 45°.

J	2.116	2.131	2.149	2.175	2.207	2.245	2.286	2.314	2.353	2.395	2.412	2.452	2.491	2.532
M_x	.679	.676	.672	.669	.666	.665	.662	.657	.657	.656	.650	.650	.647	.645
α_x,	3.05	2.86	2.64	2.32	1.94	1.50	1.03	.72	.30	-.15	-.32	-.73	-1.12	-1.52
$\Delta\beta$	.17	.17	.16	.15	.13	.11	.09	.08	.06	.05	.04	.02	.01	-.01
α_l	1.22	1.16	1.10	1.05	.96	.88	.77	.66	.56	.46	.40	.32	.26	.18
c_n	.5116	.4839	.4606	.4426	.4045	.3710	.3271	.2819	.2371	.1945	.1723	.1361	.1123	.0765
c_m	-.0285	-.0303	-.0347	-.0361	-.0378	-.0395	-.0402	-.0436	-.0451	-.0461	-.0472	-.0498	-.0515	-.0530
c_c														

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.121	1.120	1.118	1.117	1.116	1.115	1.114	1.112	1.112	1.112	1.110	1.110	1.109	1.108
.025	-.718	-.654	-.587	-.527	-.442	-.354	-.242	-.155	-.074	.020	.063	.135	.193	.266
.050	-.907	-.827	-.756	-.698	-.618	-.538	-.435	-.361	-.286	-.207	-.167	-.101	-.048	.018
.100	-.788	-.733	-.692	-.652	-.597	-.538	-.460	-.402	-.348	-.288	-.258	-.206	-.168	-.116
.200	-.746	-.703	-.673	-.645	-.606	-.559	-.501	-.457	-.418	-.374	-.351	-.312	-.284	-.243
.300	-.733	-.697	-.676	-.655	-.625	-.589	-.542	-.507	-.477	-.442	-.427	-.391	-.370	-.334
.400	-.682	-.653	-.641	-.625	-.606	-.580	-.542	-.518	-.494	-.469	-.455	-.428	-.412	-.385
.500	-.632	-.610	-.609	-.599	-.589	-.569	-.540	-.525	-.507	-.488	-.480	-.457	-.446	-.424
.600	-.603	-.587	-.595	-.590	-.589	-.573	-.553	-.544	-.532	-.520	-.515	-.497	-.493	-.474
.700	-.452	-.445	-.457	-.461	-.466	-.460	-.451	-.449	-.445	-.441	-.441	-.431	-.434	-.425
.800	-.240	-.241	-.263	-.271	-.284	-.284	-.288	-.294	-.299	-.304	-.309	-.309	-.320	-.319
.900	.059	.065	.055	.049	.039	.037	.030	.020	.012	.004	-.006	-.010	-.026	-.034
.950	.123	.140	.142	.144	.144	.148	.155	.150	.147	.145	.140	.142	.131	.127
Lower surface														
.0375	.292	.273	.228	.194	.138	.084	.012	-.062	-.134	-.221	-.279	-.343	-.425	-.510
.075	a.200	a.191	a.160	a.128	a.092	a.053	a-.006	a-.060	a-.110	a-.165	a-.200	a-.238	a-.270	a-.309
.150	.108	.102	.074	.057	.026	.003	-.032	-.071	-.105	-.145	-.173	-.199	-.236	-.269
.250	.035	.033	.013	-.002	-.026	-.044	-.068	-.097	-.124	-.153	-.173	-.191	-.220	-.244
.350	-.007	-.005	-.024	-.034	-.054	-.068	-.087	-.111	-.131	-.153	-.171	-.182	-.205	-.223
.450	-.042	-.038	-.053	-.060	-.079	-.089	-.104	-.122	-.139	-.156	-.171	-.180	-.198	-.212
.550	-.075	-.068	-.082	-.090	-.102	-.109	-.120	-.136	-.147	-.163	-.176	-.179	-.194	-.202
.650	-.116	-.108	-.119	-.122	-.133	-.137	-.142	-.155	-.163	-.174	-.184	-.183	-.195	-.197
.750	-.113	-.100	-.108	-.110	-.116	-.115	-.117	-.127	-.131	-.137	-.146	-.140	-.145	-.145
.850	-.077	-.062	-.065	-.063	-.067	-.062	-.057	-.062	-.061	-.061	-.067	-.058	-.058	-.052
.925	-.004	.014	.015	.017	.019	.025	.033	.034	.039	.042	.039	.053	.054	.064
.975	.025	.046	.051	.060	.065	.076	.094	.098	.107	.114	.116	.130	.133	.145
1.000	b.038	b.054	b.060	b.072	b.080	b.094	b.115	b.120	b.136	b.141	b.147	b.164	b.168	b.175

aFaired value.
bLower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 3.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-310.00 PROPELLER BLADE SECTION (x = 0.45) — Continued

(f) M = 0.60; $\beta_{0.75R} = 45°$.

J	2.112	2.134	2.160	2.196	2.225	2.249	2.291	2.319	2.348	2.371	2.413	2.446	2.473	2.501
M_x	.728	.723	.721	.719	.717	.712	.711	.706	.704	.700	.701	.699	.695	.693
α_x'	3.10	2.82	2.50	2.07	1.73	1.45	.98	.67	.35	.11	-.33	-.67	-.95	-1.22
$\Delta\beta$	.15	.14	.14	.12	.11	.10	.08	.06	.05	.03	.01	0	-.01	-.02
α_1	1.19	1.13	1.07	.98	.91	.83	.73	.65	.57	.50	.39	.33	.27	.20
c_n	.5000	.4742	.4510	.4116	.3816	.3487	.3081	.2732	.2435	.2145	.1674	.1413	.1158	.0855
c_m	-.0318	-.0323	-.0338	-.0349	-.0361	-.0376	-.0397	-.0424	-.0466	-.0469	-.0492	-.0501	-.0515	-.0516
c_c	-.0066													

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.140	1.138	1.137	1.136	1.135	1.134	1.133	1.132	1.131	1.129	1.130	1.128	1.127	1.126
.025	-.536	-.493	-.448	-.363	-.299	-.233	-.139	-.068	-.020	.031	.099	.161	.203	.258
.050	-.821	-.743	-.681	-.586	-.519	-.451	-.364	-.296	-.255	-.205	-.141	-.083	-.045	.007
.100	-.732	-.699	-.660	-.596	-.543	-.491	-.425	-.373	-.341	-.301	-.252	-.205	-.175	-.134
.200	-.784	-.750	-.706	-.649	-.602	-.555	-.502	-.461	-.437	-.405	-.368	-.330	-.306	-.273
.300	-.819	-.800	-.755	-.705	-.657	-.612	-.568	-.532	-.514	-.486	-.455	-.422	-.401	-.374
.400	-.782	-.754	-.720	-.685	-.648	-.613	-.580	-.553	-.539	-.517	-.494	-.468	-.451	-.428
.500	-.721	-.706	-.680	-.660	-.631	-.606	-.583	-.564	-.557	-.540	-.523	-.502	-.489	-.473
.600	-.676	-.671	-.656	-.652	-.631	-.616	-.601	-.590	-.590	-.577	-.566	-.551	-.543	-.530
.700	-.464	-.471	-.470	-.481	-.474	-.473	-.469	-.471	-.479	-.475	-.474	-.467	-.465	-.464
.800	-.219	-.232	-.239	-.263	-.265	-.272	-.280	-.287	-.301	-.305	-.312	-.316	-.322	-.328
.900	.064	.065	.068	.060	.061	.054	.049	.042	.032	.026	.014	.009	.001	-.011
.950	.110	.118	.128	.139	.148	.151	.155	.154	.148	.152	.146	.147	.143	.139
Lower surface														
.0375	.228	.191	.167	.102	.067	.019	-.056	-.118	-.177	-.227	-.307	-.377	-.438	-.518
.075	.135	.104	.088	.038	.013	-.022	-.076	-.123	-.164	-.201	-.255	-.304	-.345	-.402
.150	.068	.045	.033	-.001	-.018	-.042	-.077	-.108	-.140	-.161	-.197	-.228	-.254	-.281
.250	-.002	-.019	-.027	-.054	-.064	-.082	-.110	-.130	-.155	-.169	-.197	-.217	-.237	-.261
.350	-.042	-.057	-.060	-.081	-.087	-.099	-.121	-.138	-.158	-.169	-.190	-.205	-.221	-.242
.450	-.074	-.084	-.085	-.105	-.108	-.116	-.134	-.147	-.164	-.172	-.190	-.201	-.215	-.230
.550	-.108	-.116	-.115	-.130	-.130	-.136	-.149	-.160	-.174	-.177	-.192	-.201	-.210	-.221
.650	-.149	-.155	-.151	-.162	-.158	-.163	-.172	-.179	-.188	-.189	-.202	-.205	-.210	-.217
.750	-.139	-.144	-.136	-.141	-.137	-.136	-.142	-.144	-.151	-.150	-.155	-.156	-.158	-.159
.850	-.095	-.095	-.087	-.085	-.078	-.076	-.074	-.073	-.078	-.073	-.074	-.068	-.068	-.065
.925	-.015	-.014	-.004	.003	.013	.019	.022	.028	.026	.031	.034	.042	.045	.051
.975	.012	.016	.028	.042	.058	.068	.081	.089	.088	.099	.106	.120	.122	.130
1.000	b.025	b.030	b.036	b.060	b.073	b.087	b.104	b.118	b.115	b.128	b.140	b.156	b.160	b.161

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 3.– PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–310.00 PROPELLER BLADE SECTION (x = 0.45) – Concluded

(g) $M = 0.65$; $\beta_{0.75R} = 45°$.

	2.121	2.148	2.170	2.187	2.206	2.230	2.253	2.270	2.300	2.322	2.344	2.365	2.393	2.424
J	2.121	2.148	2.170	2.187	2.206	2.230	2.253	2.270	2.300	2.322	2.344	2.365	2.393	2.424
M_X	.793	.790	.787	.783	.779	.777	.774	.769	.767	.765	.760	.755	.756	.754
$\alpha_X{}'$	2.98	2.65	2.38	2.18	1.95	1.67	1.41	1.21	.88	.63	.40	.17	-.13	-.45
$\Delta\beta$	.12	.12	.11	.11	.11	.10	.10	.09	.09	.08	.08	.07	.06	.06
α_1	1.11	1.04	1.01	.97	.92	.86	.81	.75	.65	.61	.52	.50	.43	.36
c_n	.4639	.4368	.4232	.4077	.3871	.3619	.3400	.3161	.2761	.2561	.2206	.2110	.1819	.1519
c_m	-.0487	-.0457	-.0464	-.0477	-.0460	-.0457	-.0460	-.0460	-.0485	-.0485	-.0492	-.0534	-.0525	-.0560
c_c	.0086	.0088	.0081	.0081	.0076	.0076	.0078	.0092	.0082	.0092	.0103	.0116	.0132	.0137

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.167	1.166	1.164	1.163	1.161	1.160	1.159	1.157	1.156	1.155	1.153	1.151	1.151	1.151
.025	-.261	-.217	-.189	-.166	-.142	-.105	-.069	-.044	-.004	.033	.085	.108	.165	.211
.050	-.550	-.487	-.452	-.424	-.398	-.361	-.324	-.296	-.257	-.219	-.171	-.147	-.093	-.048
.100	-.539	-.512	-.491	-.476	-.459	-.431	-.403	-.385	-.353	-.323	-.283	-.266	-.220	-.183
.200	-.648	-.625	-.612	-.607	-.596	-.572	-.547	-.530	-.499	-.472	-.436	-.421	-.379	-.345
.300	-.752	-.726	-.699	-.681	-.669	-.660	-.647	-.641	-.614	-.586	-.549	-.533	-.491	-.459
.400	-.812	-.790	-.776	-.773	-.762	-.734	-.697	-.673	-.647	-.625	-.595	-.583	-.546	-.515
.500	-.897	-.882	-.866	-.854	-.829	-.800	-.765	-.739	-.693	-.660	-.636	-.630	-.598	-.572
.600	-.992	-.969	-.945	-.922	-.882	-.841	-.800	-.785	-.756	-.731	-.714	-.711	-.685	-.661
.700	-.481	-.531	-.554	-.567	-.565	-.566	-.570	-.579	-.549	-.548	-.549	-.556	-.538	-.531
.800	-.216	-.202	-.197	-.201	-.209	-.221	-.235	-.254	-.263	-.273	-.288	-.304	-.307	-.316
.900	-.039	-.010	.016	.036	.051	.058	.061	.056	.059	.053	.047	.037	.035	.025
.950	.014	.032	.056	.075	.091	.105	.117	.121	.132	.136	.142	.139	.149	.153
Lower surface														
.0375	.142	.094	.074	.039	.010	-.029	-.064	-.106	-.144	-.188	-.249	-.295	-.354	-.415
.075	a.074	a.045	a.027	a0	a-.022	a-.057	a-.090	a-.110	a-.143	a-.168	a-.209	a-.221	a-.296	a-.357
.150	.026	0	-.009	-.030	-.048	-.067	-.085	-.108	-.123	-.145	-.173	-.199	-.220	-.243
.250	-.045	-.065	-.071	-.088	-.101	-.117	-.131	-.148	-.158	-.175	-.195	-.214	-.230	-.247
.350	-.085	-.102	-.104	-.118	-.129	-.141	-.151	-.166	-.174	-.184	-.199	-.215	-.225	-.237
.450	-.123	-.137	-.137	-.148	-.157	-.166	-.172	-.196	-.184	-.188	-.197	-.208	-.220	-.235
.550	-.164	-.175	-.174	-.181	-.188	-.194	-.196	-.204	-.205	-.211	-.217	-.226	-.229	-.233
.650	-.218	-.224	-.219	-.223	-.226	-.228	-.227	-.232	-.228	-.229	-.233	-.239	-.237	-.237
.750	-.204	-.208	-.199	-.199	-.198	-.196	-.189	-.192	-.185	-.183	-.184	-.186	-.180	-.177
.850	-.144	-.148	-.134	-.131	-.125	-.119	-.110	-.108	-.100	-.096	-.090	-.092	-.080	-.073
.925	-.055	-.055	-.041	-.033	-.023	-.016	-.004	0	.011	.016	.024	.024	.036	.047
.975	-.035	-.023	-.002	.013	.027	.041	.059	b.064	.080	b.087	.098	b.100	.117	b.133
1.000	b-.026	b-.015	b.002	b.025	b.049	b.067	b.090	b.095	b.116	b.120	b.130	b.140	b.157	b.175

a Faired value.
b Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–308.94 PROPELLER BLADE SECTION (x = 0.50)

(a) $N = 1140$ rpm; $\beta_{0.75R} = 45°$.

J	1.623	1.736	1.822	1.924	2.060	2.168	2.315	2.432	2.566	2.511	2.397	2.243	2.105	1.990	1.883	1.772	1.686
M_x	.383	.399	.413	.423	.443	.459	.478	.496	.514	.505	.488	.466	.450	.432	.418	.406	.391
α_x'	10.56	8.64	7.26	5.73	3.82	2.42	.66	-.64	-2.03	-1.47	-.26	1.50	3.23	4.78	6.33	8.06	9.47
$\Delta\beta$	.25	.21	.18	.16	.12	.09	.06	.03	0	.01	.04	.07	.11	.14	.16	.20	.23
α_1	2.38	2.09	1.81	1.56	1.21	.95	.65	.41	.15	.25	.49	.81	1.08	1.33	1.63	1.98	2.23
c_n	.9803	.8613	.7479	.6478	.5006	.3945	.2719	.1739	.0616	.1071	.2048	.3352	.4445	.5520	.6752	.8149	.9216
c_m	-.0228	-.0188	-.0310	-.0335	-.0275	-.0374	-.0454	-.0628	-.0578	-.0586	-.0565	-.0457	-.0331	-.0314	-.0333	-.0268	-.0117
c_c																	
c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.037	1.041	1.044	1.046	1.050	1.054	1.059	1.063	1.068	1.065	1.061	1.056	1.052	1.048	1.045	1.042	1.039
.025	-1.677	-2.411	-1.794	-1.406	-.981	-.609	-.240	.097	.251	.250	-.108	-.426	-.790	-1.166	-1.545	-2.446	-1.955
.050	-1.705	-2.257	-1.486	-1.225	-.892	-.634	-.355	-.156	.052	-.038	-.267	-.443	-.767	-1.025	-1.319	-2.581	-1.969
.100	-1.732	-1.599	-1.098	-.917	-.692	-.544	-.358	-.220	-.075	-.138	-.312	-.454	-.627	-.793	-.974	-1.188	-1.899
.200	-1.542	-.901	-.865	-.752	-.609	-.521	-.397	-.305	-.207	-.249	-.383	-.464	-.568	-.678	-.791	-.898	-1.268
.300	-1.175	-.764	-.759	-.674	-.567	-.510	-.418	-.349	-.274	-.309	-.423	-.470	-.536	-.621	-.705	-.777	-.830
.400	-.828	-.659	-.652	-.590	-.501	-.474	-.408	-.354	-.299	-.333	-.423	-.445	-.486	-.549	-.608	-.664	-.634
.500	-.588	-.572	-.573	-.531	-.469	-.451	-.402	-.369	-.332	-.352	-.433	-.435	-.463	-.505	-.546	-.579	-.530
.600	-.453	-.504	-.522	-.496	-.448	-.454	-.421	-.399	-.374	-.387	-.453	-.440	-.454	-.477	-.506	-.515	-.455
.700	-.344	-.395	-.423	-.409	-.379	-.403	-.389	-.379	-.367	-.378	-.433	-.402	-.393	-.405	-.420	-.405	-.358
.800	-.241	-.251	-.272	-.272	-.254	-.296	-.308	-.322	-.316	-.321	-.373	-.301	-.279	-.274	-.273	-.263	-.233
.900	-.132	-.063	-.052	-.036	-.021	-.064	-.083	-.092	-.103	-.102	-.143	-.070	-.043	-.035	-.045	-.048	-.084
.950	-.078	.009	.026	.061	.095	.082	.116	.047	.027	.031	.001	.070	.092	.077	.049	.023	-.017
Lower surface																	
.0375	.819	.768	.696	.592	.420	.215	-.007	-.203	-.478	-.359	-.191	.111	.319	.487	.633	.746	.792
.075	.640	.580	.514	.420	.283	.122	-.041	-.181	-.360	-.292	-.186	.097	.203	.333	.456	.559	.614
.150	.474	.422	.359	.290	.193	.074	-.036	-.126	-.244	-.199	-.151	.015	.133	.224	.314	.399	.451
.250	.335	.287	.236	.187	.110	.015	-.062	-.126	-.216	-.183	-.158	-.026	.062	.136	.204	.268	.317
.350	.254	.212	.167	.129	.068	-.008	-.067	-.116	-.188	-.164	-.153	-.042	.027	.083	.142	.197	.236
.450	.177	.144	.113	.080	.032	-.036	-.080	-.116	-.177	-.157	-.156	-.058	-.002	.042	.092	.133	.168
.550	.112	.081	.051	.031	-.010	-.062	-.093	-.121	-.158	-.154	-.163	-.083	-.037	-.007	.038	.073	.102
.650	.053	.039	.016	-.001	-.027	-.076	-.093	-.109	-.144	-.135	-.156	-.086	-.051	-.026	.009	.034	.057
.750	-.008	-.005	-.021	-.026	-.033	-.078	-.093	-.102	-.110	-.116	-.146	-.088	-.066	-.052	-.024	-.012	.001
.850	-.016	-.001	-.001	-.001	-.015	-.036	-.028	-.012	-.022	-.021	-.065	-.039	-.028	-.017	.002	-.001	.001
.925	-.024	.016	.023	.022	.014	.020	.056	.069	.071	.069	.016	.037	.007	.011	.025	.023	.009
.975	-.039	.046	.044	.045	.056	.088	.132	.159	.163	.160	.101	.113	.065	.039	.038	.045	.023
1.000	[b]-.049	[b].060	[b].049	[b].052	[b].080	[b].140	[b].171	[a].233	[a].225	[a].222	[a].195	[b].162	[b].104	[b].053	[b].041	[b].051	.027

[a]Faired value.

[b]Lower surface only.

NACA

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—308.94 PROPELLER BLADE SECTION (x = 0.50) — Continued

(b) N = 1350 rpm; $\beta_{0.75R} = 45°$.

	J	1.730	1.829	1.931	2.031	2.135	2.267	2.361	2.479	2.564	2.445	2.325	2.218	2.114	1.981	1.889	1.803
	M_x	.476	.491	.504	.522	.538	.560	.577	.597	.611	.588	.567	.549	.532	.509	.494	.484
	α_x'	8.74	7.16	5.63	4.22	2.84	1.22	.14	−1.14	−2.00	−.78	.55	1.81	3.12	4.91	6.25	7.56
	$\Delta\beta$	.30	.28	.25	.20	.16	.11	.07	.03	−.01	.04	.08	.13	.16	.22	.26	.29
	α_1	2.20	1.94	1.62	1.33	1.07	.81	.60	.34	.17	.43	.67	.88	1.09	1.49	1.76	2.01
	c_n	.8876	.7884	.6635	.5477	.4413	.3365	.2516	.1435	.0706	.1797	.2810	.3652	.4516	.6132	.7189	.8166
	c_m	−.0169	−.0294	−.0309	−.0288	−.0362	−.0474	−.0540	−.0623	−.0628	−.0597	−.0549	−.0409	−.0344	−.0327	−.0314	−.0258
	c_c																
	c/b								Pressure coefficient, P								
Upper surface	0.000	1.058	1.063	1.065	1.070	1.074	1.080	1.085	1.091	1.096	1.089	1.082	1.077	1.072	1.066	1.063	1.060
	.025	−2.279	−2.201	−1.430	−1.065	−.721	−.337	−.094	.155	.315	.086	−.178	−.469	−.777	−1.245	−1.660	−2.426
	.050	−2.255	−1.625	−1.279	−1.008	−.755	−.460	−.268	−.059	.082	−.116	−.335	−.563	−.795	−1.136	−1.401	−1.848
	.100	−1.775	−1.155	−.953	−.773	−.613	−.432	−.300	−.153	−.051	−.193	−.349	−.496	−.637	−.858	−1.039	−1.200
	.200	−.961	−.909	−.794	−.683	−.583	−.466	−.380	−.280	−.207	−.307	−.410	−.507	−.598	−.735	−.843	−.916
	.300	−.785	−.792	−.710	−.633	−.560	−.480	−.416	−.344	−.288	−.361	−.440	−.507	−.569	−.669	−.744	−.791
	.400	−.684	−.683	−.620	−.554	−.513	−.460	−.414	−.360	−.322	−.374	−.432	−.478	−.523	−.593	−.644	−.676
	.500	−.588	−.594	−.554	−.516	−.487	−.452	−.418	−.399	−.357	−.391	−.430	−.461	−.490	−.536	−.572	−.585
	.600	−.505	−.528	−.508	−.484	−.472	−.458	−.440	−.419	−.405	−.423	−.446	−.459	−.473	−.496	−.514	−.510
	.700	−.396	−.422	−.420	−.410	−.416	−.422	−.411	−.406	−.401	−.402	−.418	−.415	−.413	−.420	−.420	−.406
	.800	−.243	−.257	−.264	−.265	−.287	−.305	−.335	−.346	−.343	−.341	−.325	−.298	−.282	−.268	−.258	−.241
	.900	−.068	−.044	−.024	−.012	−.034	−.070	−.076	−.089	−.093	−.080	−.075	−.050	−.030	−.021	−.033	−.042
	.950	−.001	.025	.062	.089	−.097	.077	.069	.051	.041	.062	.075	.096	.097	.076	.044	.024
Lower surface	.0375	a.743	.710	.591	.455	.287	.073	−.092	−.329	−.524	−.247	−.026	.157	.317	.526	.656	.742
	.075	.594	.524	.421	.304	.174	.035	−.107	−.274	−.394	−.215	−.061	.073	.196	.365	.477	.555
	.150	.434	.375	.291	.207	.109	−.002	−.078	−.182	−.269	−.148	−.048	.042	.126	.251	.335	.399
	.250	.297	.248	.184	.117	.041	−.042	−.095	−.175	−.242	−.146	−.073	−.010	.053	.150	.221	.271
	.350	.220	.177	.127	.071	.011	−.052	−.094	−.155	−.205	−.131	−.077	−.027	.021	.099	.156	.199
	.450	.149	.117	.074	.028	−.024	−.074	−.107	−.158	−.196	−.139	−.093	−.052	−.014	.053	.098	.136
	.550	.087	.061	.026	−.012	−.051	−.091	−.115	−.153	−.184	−.137	−.103	−.075	−.045	.007	.049	.079
	.650	.034	.015	−.010	−.044	−.075	−.101	−.115	−.140	−.161	−.131	−.107	−.087	−.067	−.023	.006	.031
	.750	−.012	−.021	−.036	−.060	−.084	−.095	−.099	−.113	−.122	−.107	−.095	−.087	−.078	−.046	−.024	−.007
	.850	−.004	−.003	−.012	−.021	−.030	−.024	−.014	−.014	−.012	−.009	−.018	−.035	−.036	−.016	−.004	.006
	.925	.009	.017	.014	.008	.017	.045	.065	.084	.091	.080	.061	.032	−.001	.007	.021	.029
	.975	.034	.035	.030	.037	.069	.128	.162	.183	.190	.182	.151	.094	.053	.033	.033	.049
	1.000	a.028	a.061	b.038	b.050	b.080	a.185	a.204	a.230	a.246	a.225	a.199	b.131	b.124	a.080	a.060	a.070

aFaired value.
bLower surface only.

CONFIDENTIAL

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-308.94 PROPELLER BLADE SECTION (x = 0.50) - Continued

(c) N = 1500 rpm; $\beta_{0.75R} = 45°$.

J	1.907	1.961	2.056	2.132	2.216	2.305	2.386	2.454	2.539	2.518	2.429	2.342	2.282	2.172	2.080	2.030	1.957
M_x	.545	.556	.576	.590	.607	.621	.638	.652	.668	.664	.645	.630	.618	.599	.580	.573	.556
$\alpha_x{}'$	5.98	5.20	3.88	2.88	1.83	.77	-.12	-.88	-1.76	-1.54	-.61	.35	1.04	2.38	3.56	4.23	5.25
$\Delta\beta$	.37	.33	.27	.22	.16	.09	.03	-.02	-.08	-.07	0	.06	.11	.19	.25	.29	.33
α_i	1.80	1.59	1.34	1.09	.94	.74	.54	.39	.18	.24	.46	.65	.79	1.03	1.23	1.42	1.65
c_n	.7359	.6544	.5516	.4529	.3929	.3084	.2265	.1645	.0781	.0997	.1932	.2703	.3287	.4258	.5071	.5839	.6758
c_m	-.0277	-.0286	-.0311	-.0364	-.0429	-.0565	-.0621	-.0674	-.0696	-.0678	-.0660	-.0579	-.0519	-.0374	-.0328	-.0292	-.0286
c_c																	

c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.076	1.079	1.085	1.090	1.095	1.100	1.105	1.111	1.117	1.115	1.108	1.103	1.099	1.092	1.086	1.084	1.079
.025	-1.981	-1.435	-1.042	-.742	-.475	-.216	-.019	.126	.296	.259	.074	-.136	-.285	-.620	-.942	-1.161	-1.521
.050	-1.401	-1.260	-1.015	-.792	-.588	-.380	-.216	-.092	.060	.025	-.137	-.316	-.437	-.702	-.943	-1.091	-1.296
.100	-1.055	-.950	-.773	-.640	-.522	-.387	-.274	-.185	-.071	-.098	-.218	-.342	-.422	-.586	-.729	-.824	-.975
.200	-.870	-.812	-.700	-.616	-.541	-.452	-.377	-.319	-.238	-.257	-.341	-.424	-.477	-.584	-.675	-.738	-.826
.300	-.769	-.731	-.650	-.587	-.540	-.480	-.426	-.385	-.323	-.339	-.399	-.461	-.500	-.568	-.634	-.676	-.737
.400	-.665	-.642	-.581	-.535	-.507	-.469	-.430	-.403	-.359	-.370	-.414	-.456	-.482	-.534	-.573	-.600	-.645
.500	-.583	-.572	-.531	-.503	-.488	-.464	-.440	-.425	-.394	-.402	-.429	-.456	-.472	-.495	-.527	-.545	-.572
.600	-.522	-.525	-.498	-.485	-.486	-.480	-.466	-.461	-.445	-.449	-.464	-.477	-.482	-.484	-.500	-.506	-.523
.700	-.417	-.432	-.419	-.420	-.432	-.442	-.435	-.441	-.434	-.437	-.438	-.443	-.444	-.424	-.424	-.425	-.425
.800	-.245	-.267	-.266	-.278	-.304	-.327	-.360	-.376	-.368	-.368	-.370	-.340	-.316	-.287	-.272	-.265	-.257
.900	-.014	-.016	-.008	-.015	-.038	-.069	-.075	-.090	-.087	-.095	-.085	-.074	-.060	-.022	-.012	-.012	-.012
.950	.051	.067	.091	.109	.109	.082	.075	.059	.060	.053	.066	.082	.094	.109	.095	.084	.065
Lower surface																	
.0375	.646	.561	.431	.309	.173	.005	-.148	-.303	-.556	-.480	-.244	-.057	.054	.247	.386	.471	.587
.075	.472	.397	.287	.192	.085	-.038	-.150	-.262	-.393	-.363	-.219	-.084	-.001	.146	.253	.321	.418
.150	.335	.274	.195	.128	.053	-.031	-.104	-.175	-.263	-.240	-.150	-.063	-.007	.093	.169	.220	.295
.250	.220	.168	.109	.057	0	-.064	-.119	-.172	-.241	-.226	-.153	-.085	-.045	.029	.087	.127	.184
.350	.157	.111	.065	.024	-.020	-.069	-.112	-.156	-.210	-.200	-.140	-.087	-.057	.004	.047	.080	.128
.450	.098	.061	.022	-.011	-.047	-.089	-.125	-.162	-.203	-.193	-.148	-.106	-.076	-.031	.005	.035	.077
.550	.047	.014	-.016	-.041	-.068	-.100	-.128	-.156	-.190	-.184	-.146	-.114	-.091	-.059	-.031	-.008	.026
.650	.004	-.025	-.049	-.068	-.086	-.113	-.135	-.154	-.175	-.172	-.148	-.124	-.105	-.082	-.063	-.043	-.014
.750	-.025	-.050	-.062	-.074	-.082	-.094	-.105	-.117	-.127	-.126	-.116	-.104	-.090	-.082	-.073	-.060	-.039
.850	-.006	-.012	-.014	-.017	-.015	-.002	-.003	-.002	-.002	-.012	-.017	-.020	-.020	-.033	-.035	-.027	-.014
.925	.019	.006	.003	.015	.041	.065	.075	.085	.094	.090	.081	.063	.057	.022	.003	.004	.014
.975	.033	.026	.040	.070	[b].103	.157	.176	.189	[a].196	.192	[a].183	.156	.137	.080	.040	.035	.030
1.000	[b].049	[b].036	[b].071	[b].110	[b].155	[a].227	[a].245	[a].250	[a].290	[a].248	[a].242	[a].210	[b].195	[b].124	[b].063	[b].053	[b].039

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-308.94 PROPELLER BLADE SECTION (x = 0.50) - Continued

(d) N = 1600 rpm; $\beta_{0.75R} = 45°$.

J	2.058	2.138	2.221	2.299	2.371	2.446	2.516	2.472	2.411	2.353	2.279	2.209	2.108
M_x	.623	.635	.649	.665	.678	.696	.711	.700	.686	.675	.656	.646	.626
α_x'	3.85	2.80	1.77	.84	.03	-.50	-1.52	-1.07	-.42	.23	1.07	1.92	3.19
$\Delta\beta$	.28	.23	.18	.13	.07	.01	-.05	-.01	.04	.09	.12	.19	.25
α_i	1.34	1.14	.97	.78	.60	.42	.25	.33	.51	.65	.87	1.03	1.22
c_n	.5523	.4716	.4026	.3239	.2510	.1790	.1045	.1387	.2132	.2735	.3613	.4268	.5058
c_m	-.0280	-.0388	-.0493	-.0570	-.0646	-.0737	-.0694	-.0732	-.0676	-.0607	-.0522	-.0472	-.0329
c_c													
c/b							Pressure coefficient, P							
Upper surface													
0.000	1.100	1.105	1.110	1.115	1.120	1.128	1.133	1.130	1.123	1.120	1.112	1.108	1.101
.025	-1.003	-.723	-.470	-.220	-.033	.167	.140	.216	.064	-.081	-.317	-.512	-.866
.050	-1.025	-.809	-.607	-.399	-.241	-.066	.051	-.022	-.157	-.283	-.479	-.639	-.915
.100	-.788	-.664	-.548	-.411	-.302	-.174	-.081	-.140	-.241	-.331	-.467	-.564	-.757
.200	-.725	-.649	-.575	-.488	-.415	-.326	-.258	-.299	-.372	-.432	-.524	-.585	-.686
.300	-.679	-.623	-.580	-.522	-.470	-.407	-.352	-.388	-.438	-.481	-.548	-.584	-.649
.400	-.608	-.568	-.544	-.509	-.476	-.432	-.392	-.418	-.451	-.481	-.527	-.545	-.588
.500	-.555	-.530	-.522	-.503	-.482	-.460	-.433	-.452	-.469	-.487	-.518	-.522	-.544
.600	-.521	-.513	-.519	-.516	-.509	-.503	-.489	-.500	-.502	-.508	-.522	-.514	-.518
.700	-.435	-.442	-.457	-.472	-.471	-.485	-.471	-.478	-.469	-.469	-.476	-.452	-.438
.800	-.269	-.287	-.313	-.332	-.377	-.407	-.402	-.407	-.390	-.359	-.327	-.307	-.279
.900	-.001	-.011	-.039	-.064	-.076	-.091	-.095	-.096	-.079	-.072	-.057	-.032	-.009
.950	.096	.113	.109	.094	.079	.061	.057	.058	.076	.085	.097	.110	.103
Lower surface													
.0375	.402	.293	.165	.006	-.145	-.354	-.558	-.426	-.233	-.096	.068	.188	.349
.075	.266	.180	.080	-.041	-.152	-.303	-.406	-.350	-.217	-.115	.005	.099	.224
.150	.179	.120	.051	-.033	-.110	-.203	-.269	-.228	-.151	-.086	-.005	.061	.149
.250	.095	.049	-.005	-.069	-.125	-.200	-.252	-.222	-.157	-.107	-.045	.004	.071
.350	.053	.017	-.026	-.075	-.122	-.181	-.222	-.202	-.147	-.106	-.059	-.019	.034
.450	.007	-.020	-.054	-.096	-.135	-.184	-.215	-.199	-.157	-.121	-.083	-.050	-.005
.550	-.029	-.050	-.076	-.110	-.140	-.178	-.204	-.193	-.157	-.132	-.100	-.072	-.041
.650	-.065	-.078	-.096	-.120	-.148	-.172	-.187	-.182	-.157	-.133	-.113	-.094	-.072
.750	-.077	-.081	-.091	-.105	-.119	-.131	-.135	-.137	-.126	-.115	-.104	-.092	-.082
.850	-.036	-.031	-.028	-.024	-.022	-.018	-.013	-.019	-.024	-.023	-.030	-.033	-.036
.925	.002	.020	.041	.060	.072	.088	.101	.088	.076	.067	.049	.032	.006
.975	.038	.075	.109	.150	.177	.197	.207	.196	.185	.169	.131	.095	.054
1.000	b.071	b.072	b.172	b.220	a.272	a.320	a.300	a.315	a.250	a.248	b.186	b.129	b.103

aFaired value.
bLower surface only.

CONFIDENTIAL

NACA

TABLE 4.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-308.94 PROPELLER BLADE SECTION (x = 0.50) - Continued

(e) $M = 0.56$; $\beta_{0.75R} = 45°$.

J	2.110	2.136	2.160	2.186	2.230	2.246	2.279	2.305	2.338	2.368	2.394	2.434	2.468	2.511
M_x	.702	.699	.694	.691	.689	.684	.683	.679	.676	.673	.671	.668	.667	.661
a_x'	3.17	2.83	2.53	2.20	1.66	1.47	1.08	.77	.40	.06	-.23	-.66	-1.03	-1.47
$\Delta\beta$	.26	.24	.22	.19	.16	.15	.13	.11	.09	.07	.05	.03	.01	-.02
α_i	1.29	1.21	1.13	1.09	.97	.89	.81	.72	.61	.52	.44	.38	.28	.19
c_n	.5335	.5032	.4690	.4532	.4039	.3710	.3384	.2997	.2561	.2165	.1865	.1610	.1187	.0797
c_m	-.0374	-.0385	-.0416	-.0413	-.0429	-.0447	-.0464	-.0472	-.0488	-.0524	-.0529	-.0547	-.0578	-.0579
c_c														
c/b							Pressure coefficient, P							
Upper surface														
0.000	1.130	1.129	1.127	1.126	1.125	1.123	1.123	1.121	1.120	1.118	1.118	1.117	1.116	1.114
.025	-.713	-.652	-.567	-.514	-.395	-.343	-.247	-.178	-.082	-.008	.043	.119	.190	.271
.050	-.921	-.836	-.735	-.680	-.566	-.517	-.430	-.365	-.281	-.217	-.170	-.099	-.034	.037
.100	-.735	-.695	-.638	-.607	-.529	-.498	-.436	-.391	-.330	-.283	-.247	-.193	-.143	-.087
.200	-.748	-.710	-.663	-.641	-.581	-.558	-.513	-.476	-.431	-.395	-.368	-.323	-.290	-.245
.300	-.730	-.701	-.661	-.648	-.597	-.582	-.544	-.517	-.481	-.452	-.428	-.392	-.365	-.327
.400	-.656	-.636	-.608	-.659	-.560	-.549	-.519	-.495	-.468	-.447	-.428	-.400	-.382	-.352
.500	-.599	-.587	-.571	-.568	-.541	-.534	-.513	-.495	-.474	-.458	-.444	-.420	-.405	-.381
.600	-.564	-.558	-.549	-.552	-.533	-.532	-.517	-.505	-.491	-.481	-.470	-.452	-.446	-.425
.700	-.455	-.456	-.456	-.465	-.457	-.462	-.457	-.453	-.447	-.444	-.439	-.429	-.427	-.414
.800	-.261	-.270	-.276	-.289	-.291	-.301	-.304	-.310	-.312	-.318	-.321	-.320	-.327	-.326
.900	.026	.020	.017	.004	.001	-.010	-.014	-.025	-.033	-.042	-.046	-.051	-.064	-.070
.950	.122	.122	.125	.119	.126	.123	.125	.119	.115	.110	.108	.105	.094	.088
Lower surface														
.0375	.316	.283	.240	.200	.138	.099	.037	-.019	-.094	-.162	-.210	-.280	-.371	-.487
.075	.199	.174	.140	.106	.061	.029	-.017	-.060	-.115	-.165	-.199	-.247	-.306	-.360
.150	.137	.118	.093	.066	.035	.011	-.019	-.050	-.088	-.119	-.140	-.168	-.203	-.242
.250	.064	.048	.029	.006	-.014	-.032	-.055	-.079	-.106	-.130	-.145	-.163	-.192	-.220
.350	.027	.014	0	-.019	-.035	-.050	-.067	-.086	-.108	-.126	-.137	-.151	-.175	-.196
.450	-.016	-.027	-.039	-.055	-.064	-.077	-.090	-.105	-.122	-.140	-.148	-.158	-.178	-.193
.550	-.047	-.054	-.064	-.078	-.084	-.095	-.106	-.118	-.131	-.143	-.148	-.154	-.170	-.181
.650	-.073	-.079	-.084	-.098	-.100	-.109	-.115	-.124	-.134	-.142	-.145	-.146	-.157	-.163
.750	-.092	-.094	-.098	-.109	-.106	-.112	-.114	-.120	-.125	-.130	-.129	-.126	-.133	-.132
.850	-.035	-.037	-.036	-.045	-.036	-.041	-.037	-.042	-.040	-.039	-.036	-.029	-.031	-.026
.925	.013	.016	.019	.013	.026	.026	.033	.031	.037	.039	.046	.056	.059	.069
.975	.058	.063	.069	.067	.083	.085	.096	.098	.109	.114	.123	.134	.139	.151
1.000	b.088	b.100	b.103	b.106	b.135	b.119	b.130	b.147	b.166	b.159	b.180	b.179	b.200	b.191

[b]Lower surface only.

NACA

CONFIDENTIAL

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—308.94 PROPELLER BLADE SECTION (x = 0.50) — Continued

(f) $M = 0.60$; $\beta_{0.75R} = 45°$.

	J	2.099	2.134	2.159	2.188	2.221	2.262	2.288	2.319	2.353	2.381	2.423	2.461	2.512
	M_x	.753	.751	.746	.740	.736	.734	.731	.728	.725	.720	.719	.715	.711
	$a_x{}'$	3.31	2.86	2.54	2.18	1.77	1.28	.97	.61	.22	-.09	-.55	-.95	-1.48
	$\Delta\beta$	.21	.20	.19	.17	.15	.12	.11	.09	.06	.04	.01	-.02	-.06
	a_i	1.37	1.29	1.19	1.14	1.03	.88	.82	.73	.61	.54	.46	.36	.21
	c_n	.5690	.5335	.4942	.4735	.4281	.3677	.3406	.3065	.2555	.2258	.1919	.1535	.0877
	c_m	-.0508	-.0513	-.0531	-.0590	-.0584	-.0615	-.0629	-.0643	-.0655	-.0677	-.0712	-.0733	-.0761
	c_c	-.0065	-.0050											
	c/b						Pressure coefficient, P							
Upper surface	0.000	1.150	1.149	1.148	1.145	1.143	1.142	1.141	1.140	1.139	1.137	1.137	1.135	1.133
	.025	-.555	-.502	-.448	-.383	-.321	-.197	-.155	-.083	-.008	.051	.119	.194	.291
	.050	-.851	-.752	-.659	-.581	-.512	-.390	-.350	-.281	-.213	-.159	-.095	-.025	.066
	.100	-.681	-.651	-.613	-.564	-.517	-.430	-.401	-.348	-.295	-.255	-.205	-.150	-.074
	.200	-.786	-.742	-.700	-.651	-.610	-.537	-.513	-.466	-.423	-.393	-.352	-.307	-.245
	.300	-.839	-.785	-.750	-.708	-.666	-.602	-.578	-.534	-.495	-.469	-.433	-.395	-.337
	.400	-.859	-.794	-.733	-.682	-.647	-.596	-.578	-.538	-.508	-.486	-.457	-.426	-.379
	.500	-.765	-.719	-.678	-.640	-.617	-.588	-.576	-.545	-.524	-.508	-.485	-.461	-.421
	.600	-.707	-.679	-.653	-.632	-.620	-.603	-.600	-.573	-.556	-.546	-.530	-.512	-.480
	.700	-.477	-.480	-.490	-.491	-.498	-.513	-.517	-.502	-.496	-.497	-.488	-.480	-.461
	.800	-.265	-.277	-.294	-.302	-.313	-.326	-.336	-.337	-.348	-.371	-.380	-.394	-.386
	.900	.021	.016	.002	-.002	-.014	-.060	-.044	-.044	-.056	-.069	-.077	-.087	-.092
	.950	.125	.132	.130	.133	.128	.120	.111	.113	.103	.093	.086	.074	.065
Lower surface	.0375	.274	.238	.186	.148	.099	.004	-.039	-.091	-.167	-.239	-.309	-.409	-.576
	.075	.169	.142	.100	.071	.032	-.041	-.076	-.112	-.170	-.222	-.274	-.343	-.409
	.150	.115	.097	.065	.045	.017	-.034	-.059	-.080	-.120	-.157	-.187	-.228	-.271
	.250	.041	.028	.002	-.010	-.033	-.073	-.089	-.105	-.134	-.163	-.185	-.220	-.251
	.350	.003	-.005	-.026	-.035	-.051	-.083	-.098	-.107	-.131	-.153	-.170	-.197	-.219
	.450	-.037	-.041	-.058	-.041	-.077	-.100	-.114	-.121	-.139	-.159	-.171	-.193	-.205
	.550	-.074	-.075	-.087	-.090	-.073	-.119	-.131	-.134	-.149	-.164	-.173	-.189	-.197
	.650	-.092	-.091	-.101	-.098	-.107	-.120	-.128	-.128	-.139	-.150	-.156	-.166	-.165
	.750	-.113	-.107	-.113	-.108	-.112	-.118	-.124	-.121	-.128	-.135	-.135	-.139	-.130
	.850	-.046	-.036	-.034	-.029	-.028	-.029	-.032	-.025	-.025	-.028	-.023	-.022	-.009
	.925	.015	.031	.035	.045	.047	.056	.056	.067	.070	.070	.081	.087	.105
	.975	b.073	b.094	b.106	b.121	b.128	b.146	b.149	b.159	.170	.171	.181	.190	.204
	1.000	b.110	b.129	b.154	b.155	b.174	b.200	b.210	b.215	a.233	a.230	a.240	a.249	a.250

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

TABLE 4.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–308.94 PROPELLER BLADE SECTION (x = 0.50) — Concluded

(g) $M = 0.65$; $\beta_{0.75R} = 45°$.

J	2.114	2.150	2.170	2.193	2.220	2.245	2.270	2.286	2.318	2.338	2.368	2.385	2.415
M_x	.814	.813	.806	.803	.800	.797	.794	.790	.789	.784	.781	.776	.773
$\alpha_x{}'$	3.11	2.65	2.40	2.11	1.78	1.48	1.18	.99	.62	.40	.06	-.13	-.46
$\Delta\beta$	.22	.18	.17	.15	.13	.12	.11	.10	.07	.06	.04	.02	-.01
α_1	1.17	1.14	1.09	.99	.95	.85	.75	.71	.62	.55	.47	.41	.35
c_n	.4845	.4723	.4535	.4123	.3948	.3555	.3135	.2961	.2594	.2277	.1971	.1723	.1458
c_m	-.0749	-.0803	-.0810	-.0724	-.0685	-.0637	-.0644	-.0637	-.0623	-.0651	-.0647	-.0624	-.0668
c_c	.0075	.0084	[a].0089	.0099	.0093	.0110	.0102	.0111	.0119	.0126	.0137	.0147	.0145
c/b	Pressure coefficient, P												
Upper surface													
0.000	1.177	1.177	1.173	1.172	1.170	1.169	1.168	1.166	1.165	1.163	1.162	1.160	1.159
.025	-.223	-.189	-.154	-.115	-.094	-.051	.041	.018	.065	.108	.153	.181	.228
.050	-.482	-.438	-.398	-.353	-.329	-.286	-.196	-.219	-.171	-.130	-.087	-.057	-.014
.100	-.463	-.444	-.423	-.396	-.381	-.349	-.270	-.303	-.264	-.234	-.200	-.180	-.145
.200	-.608	-.588	-.570	-.548	-.539	-.510	-.435	-.469	-.433	-.409	-.378	-.360	-.329
.300	-.687	-.676	-.659	-.632	-.622	-.599	-.539	-.581	-.551	-.525	-.495	-.475	-.442
.400	-.766	-.752	-.731	-.710	-.707	-.684	-.608	-.638	-.599	-.573	-.545	-.524	-.494
.500	-.796	-.785	-.774	-.757	-.750	-.713	-.635	-.667	-.624	-.596	-.573	-.562	-.539
.600	-.888	-.887	-.873	-.849	-.839	-.806	-.726	-.750	-.709	-.692	-.674	-.662	-.637
.700	-.826	-.901	-.940	-.934	-.906	-.809	-.706	-.728	-.682	-.657	-.628	-.598	-.583
.800	-.316	-.308	-.282	-.255	-.249	-.247	-.213	-.282	-.292	-.309	-.320	-.334	-.346
.900	-.118	-.101	-.058	-.012	.005	.025	.075	.023	.022	.011	.003	-.011	-.021
.950	-.030	-.006	.036	.071	.088	.111	.170	.129	.134	.132	.132	.128	.125
Lower surface													
.0375	.149	.110	.075	.039	.008	-.030	-.034	-.120	-.166	-.229	-.286	-.337	-.411
.075	.067	.036	.007	-.023	-.048	-.078	-.071	-.147	-.184	-.232	-.272	-.310	-.357
.150	.044	.023	.002	-.020	-.038	-.060	-.040	-.112	-.131	-.164	-.188	-.211	-.235
.250	-.025	-.041	-.058	-.075	-.090	-.104	-.076	-.142	-.156	-.182	-.199	-.217	-.240
.350	-.062	-.077	-.090	-.102	-.111	-.124	-.091	-.152	-.161	-.182	-.195	-.211	-.227
.450	-.110	-.122	-.131	-.141	-.150	-.157	-.121	-.180	-.184	-.199	-.211	-.221	-.230
.550	-.150	-.159	-.165	-.172	-.177	-.181	-.140	-.195	-.195	-.202	-.213	-.221	-.227
.650	-.184	-.189	-.190	-.190	-.192	-.191	-.146	-.198	-.192	-.201	-.203	-.208	-.209
.750	-.213	-.214	-.206	-.201	-.197	-.188	-.139	-.187	-.176	-.182	-.179	-.180	-.176
.850	-.135	-.130	-.114	-.103	-.098	-.088	-.032	-.077	-.067	-.065	-.058	-.083	-.051
.925	-.075	-.062	-.036	-.021	-.012	.001	.059	.017	.030	.032	.041	.043	.052
.975	[b]-.039	-.016	[b].020	.044	.056	.073	.134	.094	.105	.108	.120	.122	.133
1.000	[b]-.018	[b]-.002	[b].050	[b].079	[b].090	[b].110	[b].172	[b].138	[b].152	[b].144	[b].163	[b].165	[b].171

[a]Faired value.
[b]Lower surface only.

NACA

CONFIDENTIAL

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–307.50 PROPELLER BLADE SECTION (x = 0.60)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 45°.

J	1.634	1.770	1.888	1.995	2.144	2.263	2.397	2.570	2.501	2.328	2.210	2.085	1.974	1.857	1.735
M_x	.421	.437	.451	.463	.488	.497	.518	.537	.529	.506	.493	.474	.460	.446	.431
α_x'	10.49	8.20	6.34	4.78	2.71	1.19	−.47	−2.36	−1.58	.41	1.86	3.51	5.08	6.83	8.76
$\Delta\beta$	.42	.36	.30	.25	.18	.12	.05	−.03	0	.08	.15	.21	.26	.32	.37
α_1	2.47	2.27	1.89	1.54	1.12	.81	.53	.08	.25	.67	.97	1.28	1.60	1.98	2.33
c_n	.9466	.8740	.7301	.5983	.4397	.3210	.2110	.0300	.1010	.2645	.3803	.5006	.6236	.7682	.8967
c_m	−.0226	−.0205	−.0384	−.0424	−.0459	−.0528	−.0601	−.0568	−.0566	−.0532	−.0452	−.0444	−.0454	−.0328	−.0154
c_c															

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.045	1.049	1.052	1.056	1.061	1.063	1.069	1.074	1.072	1.065	1.062	1.057	1.054	1.051	1.048
.025	−1.837	−2.412	−1.814	−1.142	−.689	−.360	−.020	.336	.201	−.160	−.500	−.900	−1.248	−2.219	−2.402
.050	−1.811	−2.308	−1.289	−.976	−.669	−.404	−.149	.139	.024	−.260	−.505	−.786	−1.051	−1.579	−2.333
.100	−1.692	−1.519	−.986	−.796	−.566	−.409	−.228	−.014	−.100	−.308	−.475	−.651	−.843	−1.028	−1.547
.200	−1.385	−.903	−.758	−.640	−.492	−.394	−.279	−.134	−.193	−.332	−.435	−.551	−.674	−.771	−1.008
.300	−1.013	−.750	−.682	−.608	−.500	−.421	−.334	−.222	−.268	−.379	−.450	−.545	−.630	−.702	−.779
.400	−.727	−.634	−.595	−.538	−.459	−.404	−.341	−.256	−.292	−.375	−.425	−.490	−.557	−.604	−.627
.500	−.542	−.553	−.536	−.502	−.454	−.404	−.355	−.292	−.317	−.382	−.425	−.471	−.517	−.546	−.523
.600	−.427	−.472	−.479	−.464	−.434	−.414	−.376	−.323	−.343	−.401	−.420	−.442	−.475	−.483	−.439
.700	−.325	−.375	−.391	−.391	−.381	−.375	−.362	−.318	−.330	−.375	−.377	−.381	−.399	−.388	−.338
.800	−.229	−.247	−.259	−.275	−.285	−.291	−.295	−.273	−.281	−.303	−.287	−.276	−.281	−.258	−.222
.900	−.150	−.090	−.059	−.059	−.072	−.081	−.094	−.093	−.091	−.095	−.074	−.059	−.068	−.065	−.087
.950	−.110	−.021	.026	.041	.092	.037	.026	.008	.011	.021	.041	.047	.028	.012	−.030
Lower surface															
.0375	.805	.736	.648	.496	.254	.076	−.170	−.539	−.385	−.072	.161	.364	.522	.666	.770
.075	.653	.579	.496	.374	.191	.071	−.103	−.353	−.246	−.038	.124	.274	.394	.512	.609
.150	.486	.420	.353	.255	.122	.037	−.078	−.250	−.177	−.038	.076	.185	.270	.364	.446
.250	.357	.298	.245	.163	.064	.001	−.085	−.215	−.164	−.055	.031	.111	.180	.252	.320
.350	.275	.226	.186	.121	.041	−.007	−.075	−.172	−.133	−.055	.016	.079	.130	.193	.251
.450	.209	.170	.140	.083	.016	−.022	−.073	−.149	−.118	−.060	−.004	.050	.090	.142	.190
.550	.136	.110	.087	.043	−.014	−.042	−.080	−.140	−.115	−.072	−.027	.015	.048	.086	.127
.650	.084	.069	.059	.019	−.024	−.047	−.071	−.117	−.100	−.069	−.034	−.003	.022	.057	.084
.750	.028	.032	.032	.002	−.024	−.032	−.048	−.080	−.067	−.062	−.029	−.014	.003	.026	.043
.850	−.005	.022	.037	.019	−.002	0	−.001	−.016	−.007	−.010	.001	.010	.019	.029	.027
.925	−.032	.028	.059	.046	.031	.049	.059	.061	.064	.045	.041	.042	.045	.049	.027
.975	−.084	.032	.082	.066	.054	.086	.110	.136	.134	.093	.074	.060	.068	.071	.014
1.000	[b].125	[a].031	[a].100	[b].072	[b].067	[b].104	[a].135	[a].182	[a].175	[a].114	[b].094	[b].070	[b].079	[a].080	[a].010

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.50 PROPELLER BLADE SECTION (x = 0.60) - Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

J	1.689	1.773	1.865	1.995	2.092	2.185	2.302	2.409	2.565	2.495	2.384	2.284	2.172	2.074	1.949	1.859	1.738
M_x	.506	.518	.533	.549	.568	.579	.599	.616	.642	.629	.609	.594	.577	.563	.541	.526	.511
$\alpha_x{}'$	9.54	8.15	6.70	4.77	3.42	2.18	.71	-.56	-2.29	-1.53	-.27	.93	2.35	3.66	5.44	6.80	8.72
$\Delta\beta$	.57	.54	.49	.37	.30	.24	.14	.06	-.05	-.01	.08	.16	.25	.30	.42	.49	.55
α_1	2.52	2.33	2.04	1.64	1.34	1.09	.81	.51	.09	.28	.58	.83	1.15	1.40	1.76	2.13	2.39
c_n	.9730	.8970	.7889	.6380	.5258	.4261	.3206	.2019	.0355	.1090	.2297	.3290	.4523	.5490	.6843	.8264	.9224
c_m	-.0157	-.0173	-.0307	-.0417	-.0465	-.0512	-.0553	-.0587	-.0630	-.0652	-.0588	-.0560	-.0494	-.0436	-.0379	-.0271	-.0160
c_c																	

	c/b	Pressure coefficient, P																
Upper surface	0.000	1.065	1.069	1.073	1.077	1.083	1.086	1.092	1.098	1.107	1.102	1.096	1.091	1.085	1.081	1.075	1.071	1.067
	.025	-2.093	-2.194	-2.274	-1.236	-.956	-.601	-.271	.018	.348	.206	-.046	-.305	-.671	-1.043	-1.425	-2.404	-2.491
	.050	-2.073	-2.100	-1.622	-1.097	-.863	-.608	-.360	-.135	.141	.020	-.188	-.386	-.657	-.911	-1.194	-1.883	-2.241
	.100	-1.772	-1.764	-1.112	-.904	-.714	-.564	-.392	-.233	-.023	-.113	-.269	-.409	-.590	-.738	-.971	-1.200	-1.617
	.200	-1.344	-1.074	-.848	-.721	-.608	-.513	-.401	-.297	-.156	-.220	-.324	-.412	-.527	-.625	-.763	-.859	-1.102
	.300	-.972	-.782	-.765	-.680	-.604	-.534	-.454	-.376	-.259	-.306	-.383	-.449	-.540	-.613	-.707	-.764	-.841
	.400	-.727	-.648	-.659	-.598	-.544	-.500	-.438	-.381	-.296	-.332	-.390	-.440	-.498	-.549	-.620	-.657	-.673
	.500	-.571	-.561	-.591	-.555	-.521	-.498	-.447	-.409	-.342	-.362	-.404	-.440	-.494	-.521	-.567	-.583	-.562
	.600	-.458	-.478	-.523	-.507	-.489	-.482	-.447	-.421	-.378	-.391	-.425	-.453	-.473	-.487	-.513	-.512	-.468
	.700	-.355	-.374	-.422	-.423	-.420	-.425	-.403	-.393	-.371	-.376	-.402	-.412	-.413	-.415	-.422	-.410	-.364
	.800	-.250	-.245	-.281	-.291	-.301	-.320	-.311	-.313	-.315	-.318	-.324	-.322	-.309	-.294	-.282	-.268	-.245
	.900	-.147	-.096	-.070	-.058	-.068	-.086	-.083	-.090	-.103	-.102	-.098	-.092	-.074	-.061	-.059	-.072	-.112
	.950	-.104	-.043	.009	.035	.039	.031	.035	.030	.015	.007	.023	.030	.042	.043	.024	.002	-.056
Lower surface	.0375	.764	.722	.641	.499	.345	.174	-.003	-.233	-.559	-.430	-.176	.019	.228	.387	.555	.669	.742
	.075	.606	.565	.491	.375	.254	.128	-.006	-.149	-.391	-.276	-.112	.019	.169	.286	.418	.518	.585
	.150	.444	.411	.343	.257	.165	.072	-.009	-.114	-.281	-.205	-.089	0	.103	.190	.287	.369	.426
	.250	.314	.287	.229	.161	.092	.019	-.047	-.128	-.243	-.190	-.107	-.035	.045	.110	.189	.254	.302
	.350	.240	.217	.172	.115	.060	0	-.047	-.107	-.199	-.156	-.092	-.040	.022	.078	.136	.191	.230
	.450	.173	.158	.119	.073	.027	-.019	-.054	-.104	-.176	-.140	-.091	-.049	-.001	.043	.091	.135	.176
	.550	.106	.098	.069	.031	-.007	-.046	-.071	-.111	-.164	-.139	-.101	-.068	-.028	.005	.044	.084	.107
	.650	.056	.049	.031	.002	-.025	-.055	-.069	-.104	-.138	-.118	-.092	-.068	-.041	-.015	.010	.044	.055
	.750	.003	.012	0	-.016	-.026	-.048	-.054	-.073	-.097	-.085	-.069	-.053	-.035	-.021	-.011	.013	.016
	.850	-.028	-.004	-.002	-.006	-.015	-.025	-.016	-.024	-.030	-.019	-.020	-.014	-.012	-.007	-.007	.011	-.003
	.925	-.045	-.013	.007	.015	.017	.019	.035	.039	.049	.058	.044	.041	.028	.021	.010	.019	-.010
	.975	-.116	-.059	-.019	.002	.027	.044	.075	.088	.115	.132	.099	.083	.049	.027	.014	.022	-.023
	1.000	b-.161	b-.092	b-.040	b-.020	b.019	b.051	b.092	a.115	a.145	a.170	a.125	a.104	b.055	b.028	b.010	b.021	b-.033

a Faired value.

b Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.50 PROPELLER BLADE SECTION (x = 0.60) - Continued

(c) N = 1500 rpm; $\beta_{0.75R} = 45°$.

J	2.536	2.445	2.360	2.259	2.183	2.088	2.010	1.948	1.975	2.055	2.140	2.221	2.312	2.389	2.474
M_x	.710	.691	.676	.656	.644	.626	.614	.603	.606	.624	.637	.652	.668	.682	.697
$\alpha_x{'}$	-1.98	-.97	.01	1.24	2.21	3.47	4.56	5.46	5.06	3.93	2.77	1.72	.59	-.33	-1.29
$\Delta\beta$	-.16	-.03	.09	.23	.33	.44	.53	.58	.56	.48	.38	.28	.15	.05	-.11
α_i	.14	.40	.63	.96	1.18	1.44	1.70	1.95	1.82	1.55	1.28	1.08	.79	.58	.33
c_n	.0574	.1581	.2516	.3781	.4655	.5652	.6665	.7588	.7111	.6058	.5013	.4245	.3116	.2284	.1329
c_m	-.0724	-.0691	-.0628	-.0579	-.0522	-.0451	-.0354	-.0285	-.0335	-.0438	-.0515	-.0542	-.0613	-.0671	-.0728
c_c															
c/b							Pressure coefficient, P								
	Upper surface														
0.000	1.133	1.126	1.120	1.112	1.108	1.101	1.097	1.094	1.095	1.101	1.105	1.101	1.117	1.122	1.128
.025	.348	.170	-.042	-.367	-.637	-1.010	-1.635	-2.236	-1.980	-1.241	-.799	-.504	-.189	.028	.230
.050	.138	-.017	-.193	-.448	-.657	-.936	-1.119	-1.844	-1.313	-1.080	-.779	-.553	-.310	-.135	.035
.100	-.026	-.153	-.285	-.466	-.604	-.767	-.914	-.989	-.965	-.810	-.680	-.537	-.369	-.242	-.113
.200	-.171	-.259	-.346	-.461	-.546	-.640	-.743	-.812	-.779	-.689	-.589	-.502	-.399	-.317	-.230
.300	-.284	-.351	-.418	-.500	-.565	-.640	-.706	-.752	-.729	-.668	-.602	-.531	-.459	-.397	-.329
.400	-.325	-.378	-.426	-.480	-.526	-.574	-.619	-.653	-.637	-.593	-.549	-.502	-.450	-.407	-.361
.500	-.375	-.409	-.439	-.475	-.513	-.540	-.568	-.585	-.576	-.550	-.528	-.494	-.456	-.427	-.396
.600	-.417	-.440	-.459	-.480	-.495	-.505	-.518	-.522	-.518	-.509	-.501	-.486	-.470	-.448	-.430
.700	-.405	-.419	-.424	-.424	-.428	-.425	-.425	-.419	-.418	-.422	-.428	-.425	-.423	-.416	-.408
.800	-.338	-.344	-.331	-.313	-.306	-.290	-.277	-.261	-.265	-.282	-.300	-.306	-.323	-.332	-.339
.900	-.093	-.094	-.079	-.061	-.054	-.042	-.035	-.029	-.025	-.034	-.048	-.055	-.071	-.080	-.091
.950	.034	.035	.050	.061	.065	.067	.058	.049	.060	.065	.066	.067	.056	.046	.029
	Lower surface														
.0375	-.712	-.372	-.158	.083	.225	.376	.504	.595	.560	.441	.294	.162	-.037	-.210	-.443
.075	-.369	-.237	-.097	.071	.173	.285	.384	.457	.431	.337	.223	.127	-.014	-.132	-.272
.150	-.268	-.172	-.077	.041	.111	.192	.267	.326	.303	.229	.147	.082	-.019	-.097	-.197
.250	-.235	-.169	-.102	-.009	.050	.116	.174	.221	.204	.145	.079	.024	-.056	-.115	-.186
.350	-.186	-.136	-.083	-.012	.029	.082	.129	.168	.155	.106	.053	.013	-.048	-.093	-.148
.450	-.165	-.126	-.085	-.029	.008	.048	.085	.117	.106	.068	.024	-.008	-.057	-.091	-.136
.550	-.158	-.126	-.097	-.050	-.022	.011	.042	.069	.062	.029	-.007	-.032	-.071	-.097	-.133
.650	-.135	-.114	-.094	-.059	-.036	-.013	.010	.032	.028	.002	-.027	-.043	-.076	-.093	-.117
.750	-.086	-.077	-.068	-.047	-.031	-.016	-.003	.007	.005	-.005	-.025	-.035	-.056	-.062	-.076
.850	-.009	-.009	-.013	-.005	-.004	.001	.005	.010	.012	.005	-.002	-.002	-.008	-.005	-.004
.925	.077	.071	.056	.049	.042	.033	.026	.023	.031	.031	.039	.048	.054	.067	.082
.975	.151	.139	.112	.087	.072	.040	.017	.007	.015	.031	.058	.082	.102	.130	.158
1.000	a.215	a.185	a.159	b.105	b.084	b.038	b-.003	b-.021	b-.005	b.020	b.060	b.098	a.128	a.165	a.195

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.50 PROPELLER BLADE SECTION (x = 0.60) — Continued

(d) N = 1600 rpm; $\beta_{0.75R}$ = 45°.

J	2.505	2.478	2.404	2.333	2.279	2.211	2.158	2.116	2.041	2.070	2.136	2.178	2.245	2.306	2.374	2.444
M_x	.757	.749	.733	.721	.710	.697	.686	.679	.663	.670	.682	.689	.701	.713	.728	.741
α_x'	-1.64	-1.34	-.50	.34	.99	1.84	2.53	3.09	4.12	3.72	2.83	2.27	1.42	.66	-.15	-.96
$\Delta\beta$	-.18	-.12	.02	.15	.23	.32	.39	.45	.54	.50	.42	.36	.27	.19	.08	-.06
α_i	.15	.28	.54	.76	.94	1.13	1.32	1.46	1.68	1.63	1.37	1.25	1.04	.85	.66	.42
c_n	.0600	.1123	.2135	.3016	.3723	.4442	.5168	.5729	.6568	.6381	.5361	.4910	.4126	.3358	.2623	.1671
c_m	-.0769	-.0803	-.0698	-.0647	-.0609	-.0546	-.0508	-.0462	-.0398	-.0492	-.0487	-.0552	-.0595	-.0648	-.0678	-.0768
c_c	.0219	.0165														.0148

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.152	1.149	1.142	1.137	1.133	1.128	1.124	1.121	1.115	1.117	1.122	1.125	1.130	1.134	1.141	1.145
.025	.354	.285	.102	-.097	-.286	-.506	-.739	-.937	-1.427	-1.251	-.836	-.645	-.391	-.179	.006	.204
.050	.142	.079	-.081	-.248	-.403	-.582	-.773	-.946	-1.324	-1.186	-.857	-.697	-.489	-.318	-.162	.007
.100	-.031	-.083	-.212	-.342	-.453	-.576	-.696	-.783	-.861	-.853	-.743	-.650	-.514	-.391	-.276	-.144
.200	-.186	-.221	-.314	-.402	-.469	-.544	-.614	-.659	-.754	-.721	-.641	-.586	-.508	-.434	-.357	-.268
.300	-.315	-.341	-.412	-.482	-.532	-.584	-.636	-.671	-.734	-.711	-.659	-.614	-.556	-.506	-.447	-.379
.400	-.370	-.389	-.440	-.486	-.516	-.550	-.581	-.602	-.642	-.625	-.594	-.567	-.534	-.502	-.461	-.415
.500	-.429	-.437	-.467	-.497	-.513	-.540	-.559	-.567	-.589	-.577	-.565	-.552	-.524	-.505	-.481	-.456
.600	-.488	-.485	-.497	-.514	-.521	-.527	-.529	-.528	-.536	-.530	-.531	-.528	-.521	-.519	-.504	-.495
.700	-.467	-.457	-.459	-.463	-.455	-.450	-.445	-.439	-.436	-.433	-.445	-.447	-.452	-.459	-.458	-.462
.800	-.373	-.373	-.355	-.342	-.325	-.315	-.302	-.290	-.277	-.277	-.299	-.306	-.319	-.335	-.341	-.372
.900	-.093	-.088	-.076	-.070	-.056	-.048	-.039	-.032	-.025	-.024	-.038	-.040	-.052	-.065	-.067	-.087
.950	.040	.039	.055	.063	.072	.072	.077	.075	.068	.074	.075	.079	.074	.066	.066	.045
Lower surface																
.0375	-.909	-.615	-.289	-.108	.037	.159	.271	.343	.457	.426	.305	.233	.101	-.043	-.185	-.416
.075	-.359	-.325	-.184	-.063	.039	.127	.209	.263	.352	.327	.233	.181	.086	-.017	-.115	-.263
.150	-.296	-.245	-.137	-.055	.017	.078	.140	.178	.244	.227	.156	.120	.051	-.023	-.088	-.193
.250	-.267	-.227	-.149	-.088	-.028	.021	.070	.104	.137	.142	.083	.055	-.003	-.063	-.111	-.189
.350	-.218	-.184	-.123	-.076	-.030	.008	.046	.072	.115	.105	.056	.033	-.010	-.056	-.092	-.153
.450	-.194	-.167	-.117	-.081	-.043	-.013	.018	.039	.074	.067	.027	.008	-.027	-.065	-.093	-.141
.550	-.183	-.161	-.123	-.094	-.064	-.039	-.012	.004	.032	.027	-.006	-.020	-.050	-.082	-.102	-.141
.650	-.157	-.140	-.115	-.094	-.070	-.054	-.033	-.018	.003	-.001	-.027	-.038	-.060	-.085	-.097	-.125
.750	-.105	-.095	-.081	-.071	-.054	-.045	-.030	-.020	-.007	-.006	-.027	-.032	-.047	-.063	-.070	-.085
.850	-.018	-.011	-.014	-.015	-.008	-.008	-.003	0	.001	.003	-.003	-.001	-.007	-.013	-.009	-.009
.925	.074	.079	.066	.055	.050	.041	.041	.036	.026	.033	.038	.045	.048	.052	.062	.074
.975	.149	.159	.134	.109	.096	.075	.064	.051	.021	.033	.057	.073	.088	.103	.123	.147
1.000	a.188	a.215	a.170	b.132	b.119	b.090	b.068	b.058	b.011	b.029	b.059	b.090	b.111	b.127	a.158	a.180

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.50 PROPELLER BLADE SECTION (x = 0.60) — Continued

(e) $M = 0.56$; $\beta_{0.75R} = 45°$.

J	2.122	2.149	2.177	2.195	2.224	2.250	2.279	2.309	2.338	2.370	2.405	2.435	2.468	2.501	2.535
M_x	.753	.749	.745	.740	.735	.732	.728	.724	.721	.717	.713	.709	.706	.702	.699
α_x'	3.01	2.66	2.29	2.06	1.68	1.36	.99	.63	.27	-.10	-.51	-.86	-1.23	-1.60	-1.97
$\Delta\beta$	.42	.38	.34	.31	.27	.24	.20	.16	.11	.09	.04	0	-.03	-.07	-.10
α_1	1.53	1.43	1.33	1.28	1.17	1.07	.99	.85	.75	.65	.53	.46	.34	.24	.12
c_n	.6019	.5619	.5226	.5032	.4600	.4232	.3897	.3374	.2948	.2584	.2113	.1813	.1368	.0945	.0474
c_m	-.0569	-.0569	-.0652	-.0628	-.0666	-.0682	-.0657	-.0675	-.0688	-.0710	-.0714	-.0718	-.0718	-.0723	-.0732
c_c	-.0104	-.0068													

Pressure coefficient, P

c/b															
Upper surface															
0.000	1.150	1.149	1.147	1.145	1.143	1.142	1.140	1.139	1.137	1.136	1.134	1.133	1.132	1.130	1.129
.025	-.662	-.603	-.524	-.484	-.404	-.319	-.246	-.133	-.055	.022	.107	.158	.228	.298	.361
.050	-.893	-.782	-.653	-.603	-.521	-.444	-.379	-.253	-.210	-.145	-.076	-.028	.032	.091	.149
.100	-.804	-.725	-.657	-.622	-.558	-.496	-.442	-.367	-.310	-.259	-.201	-.164	-.114	-.063	-.018
.200	-.719	-.673	-.629	-.606	-.562	-.516	-.476	-.423	-.380	-.344	-.301	-.275	-.238	-.202	-.168
.300	-.767	-.746	-.709	-.683	-.636	-.590	-.548	-.503	-.464	-.431	-.395	-.372	-.340	-.309	-.282
.400	-.797	-.740	-.680	-.649	-.611	-.574	-.540	-.506	-.473	-.447	-.418	-.398	-.370	-.346	-.321
.500	-.697	-.669	-.645	-.626	-.601	-.571	-.544	-.518	-.494	-.474	-.449	-.435	-.418	-.402	-.385
.600	-.611	-.609	-.603	-.595	-.581	-.564	-.543	-.528	-.508	-.489	-.471	-.459	-.444	-.431	-.416
.700	-.464	-.473	-.484	-.487	-.487	-.485	-.475	-.475	-.464	-.457	-.444	-.435	-.425	-.417	-.409
.800	-.281	-.295	-.312	-.321	-.327	-.334	-.333	-.344	-.346	-.352	-.352	-.350	-.343	-.340	-.337
.900	-.002	-.011	-.024	-.031	-.037	-.047	-.050	-.063	-.069	-.078	-.083	-.088	-.086	-.089	-.093
.950	.101	.097	.094	.091	.088	.082	.081	.072	.067	.058	.051	.044	.045	.044	.038
Lower surface															
.0375	.300	.253	.203	.175	.125	.070	.024	-.066	-.132	-.204	-.285	-.346	-.431	-.553	-.718
.075	.235	.201	.161	.140	.105	.064	.031	-.032	-.079	-.127	-.181	-.223	-.269	-.324	-.384
.150	.162	.136	.106	.089	.065	.036	.013	-.027	-.063	-.097	-.133	-.160	-.194	-.239	-.280
.250	.089	.067	.045	.031	.013	-.010	-.027	-.063	-.086	-.112	-.141	-.161	-.186	-.214	-.245
.350	.061	.044	.026	.014	.001	-.020	-.031	-.059	-.076	-.095	-.116	-.131	-.148	-.171	-.196
.450	.032	.017	.002	-.007	-.017	-.031	-.041	-.063	-.076	-.092	-.107	-.120	-.134	-.150	-.171
.550	-.005	-.017	-.028	-.034	-.043	-.054	-.060	-.080	-.088	-.100	-.110	-.121	-.131	-.126	-.137
.650	-.029	-.037	-.045	-.050	-.054	-.062	-.066	-.081	-.086	-.093	-.101	-.110	-.117	-.126	-.137
.750	-.026	-.032	-.036	-.039	-.040	-.047	-.046	-.056	-.060	-.063	-.067	-.074	-.076	-.081	-.091
.850	.001	-.001	-.001	-.001	.001	0	.001	-.003	-.003	-.003	-.003	-.003	-.005	-.008	-.015
.925	.046	.047	.050	.052	.058	.058	.060	.063	.066	.068	.072	.072	.072	.070	.067
.975	.064	.068	.078	.083	.091	.096	.101	.111	.118	.125	.135	.137	.133	.131	.126
1.000	[b].070	[b].070	[a].090	[b].096	[b].104	[b].115	[b].122	[b].133	[b].143	[a].157	[a].174	[a].118	[a].165	[a].160	[a].156

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 5.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–307.50 PROPELLER BLADE SECTION (x = 0.60) — Continued

(f) M = 0.60; $\beta_{0.75R} = 45°$.

J	2.124	2.154	2.183	2.204	2.230	2.258	2.275	2.310	2.337	2.367	2.395	2.427	2.456	2.493	2.521
M_X	.800	.795	.794	.787	.783	.779	.770	.769	.766	.762	.758	.755	.751	.747	.744
α_x'	2.99	2.59	2.21	1.94	1.61	1.25	1.04	.61	.29	-.07	-.40	-.77	-1.09	-1.51	-1.81
$\Delta\beta$	.32	.31	.28	.26	.23	.19	.17	.11	.07	.03	-.01	-.06	-.10	-.15	-.19
α_i	1.47	1.36	1.29	1.23	1.12	1.02	.95	.86	.75	.67	.58	.46	.38	.28	.18
c_n	.5768	.5361	.5090	.4832	.4419	.4039	.3758	.3394	.2977	.2661	.2277	.1806	.1519	.1097	.0697
c_m	-.0737	-.0749	-.0759	-.0747	-.0724	-.0736	-.0736	-.0772	-.0768	-.0768	-.0763	-.0792	-.0793	-.0760	-.0765
c_c	-.0005	.0002	.0018	.0022	.0041	.0063	.0074	.0088	.0115	.0126	.0137	.0152	.0158		

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.170	1.168	1.168	1.164	1.163	1.161	1.158	1.157	1.156	1.154	1.153	1.151	1.150	1.148	1.147
.025	-.437	-.387	-.331	-.311	-.233	-.172	-.131	-.059	.009	.062	.133	.205	.252	.313	.362
.050	-.664	-.567	-.486	-.462	-.384	-.326	-.289	-.224	-.165	-.118	-.056	.008	.048	.105	.150
.100	-.637	-.594	-.550	-.533	-.469	-.421	-.392	-.336	-.287	-.248	-.197	-.145	-.110	-.061	-.021
.200	-.683	-.624	-.568	-.556	-.513	-.480	-.458	-.418	-.383	-.354	-.316	-.276	-.248	-.208	-.177
.300	-.726	-.701	-.664	-.652	-.624	-.601	-.579	-.536	-.498	-.469	-.433	-.396	-.370	-.335	-.305
.400	-.800	-.768	-.741	-.734	-.686	-.638	-.607	-.564	-.530	-.501	-.471	-.437	-.414	-.379	-.353
.500	-.828	-.802	-.760	-.711	-.658	-.633	-.611	-.582	-.559	-.537	-.512	-.486	-.468	-.438	-.415
.600	-.916	-.870	-.796	-.740	-.707	-.674	-.654	-.620	-.598	-.575	-.556	-.531	-.513	-.487	-.466
.700	-.608	-.546	-.549	-.538	-.535	-.541	-.535	-.525	-.520	-.511	-.502	-.490	-.481	-.465	-.450
.800	-.258	-.269	-.284	-.293	-.314	-.327	-.338	-.345	-.356	-.361	-.371	-.376	-.374	-.366	-.361
.900	-.017	-.004	-.006	-.010	-.022	-.031	-.042	-.049	-.060	-.063	-.076	-.084	-.086	-.088	-.088
.950	.076	.095	.103	.105	.100	.095	.089	.084	.074	.070	.061	.054	.052	.050	.048
Lower surface															
.0375	.222	.178	.138	.115	.053	-.003	-.042	-.102	-.181	-.235	-.321	-.417	-.518	-.725	-.928
.075	.178	.146	.116	.100	.053	.015	-.015	-.058	-.113	-.150	-.207	-.265	-.296	-.330	-.347
.150	.117	.095	.073	.059	.028	-.001	-.021	-.050	-.089	-.113	-.151	-.191	-.222	-.259	-.288
.250	.044	.028	.014	.005	-.020	-.043	-.057	-.080	-.110	-.130	-.162	-.190	-.209	-.232	-.255
.350	.022	.009	-.001	-.009	-.028	-.047	-.057	-.073	-.097	-.111	-.134	-.155	-.169	-.188	-.204
.450	-.012	-.019	-.026	-.031	-.046	-.059	-.070	-.080	-.100	-.109	-.129	-.145	-.156	-.168	-.180
.550	-.052	-.055	-.058	-.061	-.074	-.082	-.089	-.097	-.113	-.120	-.133	-.145	-.153	-.163	-.169
.650	-.075	-.071	-.069	-.072	-.079	-.085	-.089	-.094	-.106	-.109	-.118	-.126	-.130	-.136	-.141
.750	-.072	-.064	-.058	-.059	-.063	-.064	-.068	-.067	-.076	-.078	-.083	-.085	-.086	-.090	-.092
.850	-.035	-.023	-.012	-.011	-.009	-.008	-.010	-.005	-.011	-.011	-.012	-.010	-.008	-.007	-.009
.925	.018	.035	.050	.052	.058	.060	.062	.067	.064	.066	.069	.073	.075	.074	.075
.975	.041	.065	.085	.090	.101	.108	.112	.123	.121	.127	.132	.139	.138	.137	.138
1.000	b.049	b.078	b.104	b.110	b.133	b.128	b.139	b.152	b.148	a.166	a.170	a.175	a.176	a.170	a.169

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 5.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.50 PROPELLER BLADE SECTION (x = 0.60) - Concluded

(g) $M = 0.65$; $\beta_{0.75R} = 45°$.

J	2.106	2.135	2.167	2.186	2.210	2.246	2.263	2.283	2.304	2.330	2.351	2.379	2.400	2.421
M_x	.870	.868	.866	.860	.856	.852	.847	.844	.837	.833	.828	.824	.818	.815
α_x'	3.23	2.84	2.42	.217	1.86	1.41	1.19	.95	.69	.37	.12	-.21	-.45	-.70
$\Delta\beta$	.37	.31	.25	.21	.16	.10	.07	.04	.01	-.04	-.08	-.14	-.18	-.23
α_1	1.13	1.06	1.00	.97	.90	.84	.81	.73	.65	.59	.50	.45	.38	.28
c_n	.4432	.4174	.3935	.3813	.3548	.3323	.3181	.2890	.2555	.2342	.1994	.1781	.1516	.1116
c_m	-.0754	-.0751	-.0732	-.0747	-.0775	-.0769	-.0749	-.0775	-.0762	-.0751	-.0724	-.0770	-.0765	-.0788
c_c	.0256	.0255	.0244	.0239	.0234	.0225	.0215	.0186	.0178	.0174	.0189	.0193	.0196	.0204

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.203	1.203	1.201	1.198	1.196	1.195	1.192	1.190	1.187	1.185	1.183	1.181	1.178	1.177
.025	-.106	-.073	-.039	-.020	.008	.057	.087	.120	.159	.195	.228	.265	.302	.338
.050	-.372	-.332	-.292	-.276	-.246	-.201	-.176	-.143	-.107	-.070	-.039	-.003	.035	.074
.100	-.397	-.374	-.349	-.337	-.313	-.275	-.253	-.225	-.195	-.164	-.139	-.108	-.078	-.049
.200	-.472	-.444	-.411	-.396	-.380	-.354	-.345	-.325	-.304	-.284	-.266	-.245	-.223	-.201
.300	-.614	-.593	-.601	-.578	-.565	-.539	-.533	-.519	-.509	-.498	-.487	-.465	-.441	-.414
.400	-.694	-.683	-.671	-.669	-.657	-.635	-.639	-.632	-.613	-.584	-.564	-.546	-.525	-.497
.500	-.699	-.691	-.677	-.673	-.662	-.645	-.639	-.617	-.594	-.577	-.599	-.538	-.517	-.501
.600	-.791	-.784	-.771	-.767	-.761	-.741	-.739	-.719	-.702	-.670	-.659	-.645	-.634	-.613
.700	-.872	-.865	-.852	-.853	-.852	-.858	-.827	-.804	-.780	-.762	-.756	-.744	-.726	-.706
.800	-.318	-.311	-.289	-.281	-.272	-.257	-.254	-.254	-.280	-.317	-.322	-.334	-.342	-.333
.900	-.278	-.271	-.249	-.236	-.218	-.189	-.162	-.111	-.071	-.038	-.019	-.015	-.020	-.032
.950	-.260	-.250	-.226	-.208	-.185	-.147	-.107	-.043	.001	.040	.061	.081	.086	.088
Lower surface														
.0375	.125	.086	.042	.006	-.034	-.088	-.143	-.188	-.257	-.315	-.383	-.503	-.613	-.750
.075	.109	.080	.065	.021	-.009	-.047	-.088	-.118	-.164	-.202	-.243	-.290	-.356	-.506
.150	.070	.049	.025	.003	-.018	-.044	-.074	-.095	-.127	-.150	-.176	-.208	-.244	-.266
.250	.008	-.010	-.030	-.048	-.066	-.086	-.111	-.125	-.151	-.170	-.191	-.215	-.241	-.264
.350	-.017	-.032	-.050	-.065	-.080	-.096	-.115	-.125	-.146	-.159	-.175	-.191	-.212	-.229
.450	-.044	-.057	-.073	-.085	-.098	-.110	-.126	-.132	-.146	-.155	-.167	-.179	-.196	-.206
.550	-.127	-.139	-.152	-.161	-.170	-.177	-.188	-.189	-.197	-.199	-.207	-.213	-.222	-.226
.650	-.170	-.179	-.188	-.191	-.195	-.198	-.201	-.195	-.196	-.191	-.195	-.194	-.197	-.194
.750	-.212	-.219	-.219	-.214	-.211	-.202	-.194	-.177	-.169	-.159	-.157	-.148	-.145	-.139
.850	-.212	-.212	-.204	-.191	-.178	-.159	-.142	-.114	-.099	-.082	-.077	-.062	-.054	-.045
.925	-.207	-.199	-.181	-.159	-.139	-.109	-.088	-.047	-.024	.001	.008	.026	.038	.051
.975	-.337	-.314	-.278	-.239	-.203	-.152	-.105	-.036	.003	.041	.051	.078	.095	.113
1.000	b-.444	b-.420	b-.360	b-.309	b-.260	b-.196	b-.123	b-.039	b.009	b.052	b.072	b.109	b.128	b.150

b Lower surface only.

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65)

(a) $N = 1140$ rpm; $\beta_{0.75R} = 45°$.

J	1.637	1.750	1.883	1.980	2.126	2.230	2.367	2.518	2.582	2.458	2.321	2.197	2.067	1.949	1.840	1.720
M_x	.446	.456	.473	.483	.503	.515	.532	.551	.558	.542	.523	.508	.495	.478	.468	.454
$\alpha_x{}'$	10.48	8.60	6.52	5.09	3.05	1.68	-.02	-1.76	-2.46	-1.08	.54	2.11	.385	5.54	7.18	9.09
$\Delta\beta$	.54	.47	.38	.32	.24	.17	.07	-.03	-.06	.01	.10	.19	.27	.34	.41	.49
α_1	2.61	2.36	2.03	1.67	1.23	.95	.62	.22	.07	.39	.72	1.05	1.39	1.78	2.21	2.45
c_n	.9618	.8759	.7620	.6249	.4658	.3606	.2348	.0845	.0265	.1471	.2735	.3994	.5271	.6680	.8225	.9083
c_m	-.0583	-.0222	-.0288	-.0403	-.0411	-.0457	-.0519	-.0587	-.0574	-.0590	-.0501	-.0457	-.0410	-.0579	-.0232	-.0347
c_c																

	c/b	Pressure coefficient, P															
Upper surface	0.000	1.051	1.053	1.057	1.060	1.065	1.068	1.072	1.078	1.080	1.075	1.070	1.066	1.063	1.059	1.056	1.053
	.025	-1.389	-1.546	-2.092	-1.244	-.783	-.472	-.113	.224	.336	.097	-.220	-.593	-.964	-1.575	-2.165	-1.484
	.050	-1.352	-1.546	-1.805	-1.095	-.749	-.523	-.248	.018	.115	-.086	-.336	-.608	-.894	-1.163	-1.886	-1.468
	.100	-1.334	-1.535	-1.073	-.834	-.591	-.446	-.257	-.070	.005	-.146	-.320	-.500	-.691	-.885	-1.441	-1.448
	.200	-1.262	-1.305	-.727	-.665	-.509	-.418	-.295	-.170	-.117	-.223	-.338	-.450	-.571	-.695	-.834	-1.287
	.300	-1.101	-.955	-.659	-.612	-.504	-.436	-.341	-.252	-.207	-.292	-.377	-.460	-.551	-.638	-.661	-1.049
	.400	-.914	-.674	-.596	-.563	-.487	-.441	-.361	-.302	-.266	-.333	-.395	-.455	-.518	-.587	-.583	-.796
	.500	-.712	-.496	-.504	-.482	-.426	-.394	-.339	-.296	-.268	-.318	-.363	-.402	-.453	-.499	-.494	-.580
	.600	-.555	-.392	-.449	-.440	-.407	-.383	-.346	-.319	-.296	-.333	-.363	-.388	-.423	-.451	-.432	-.434
	.700	-.419	-.306	-.368	-.376	-.358	-.348	-.328	-.317	-.300	-.326	-.343	-.350	-.371	-.382	-.349	-.326
	.800	-.314	-.214	-.260	-.270	-.276	-.282	-.279	-.285	-.276	-.288	-.286	-.274	-.278	-.273	-.243	-.232
	.900	-.217	-.105	-.068	-.062	-.067	-.076	-.079	-.101	-.099	-.099	-.089	-.071	-.073	-.069	-.073	-.138
	.950	-.178	-.059	.019	.031	.045	.045	.038	.018	.022	.021	.036	.048	.038	.024	.005	-.101
Lower surface	.0375	.770	.722	.640	.540	.320	.151	-.075	-.434	-.533	-.283	-.014	.227	.408	.577	.691	.735
	.075	.623	.572	.496	.400	.235	.113	-.039	-.260	-.349	-.180	-.007	.170	.300	.433	.534	.587
	.150	.468	.429	.357	.284	.157	.073	-.031	-.179	-.235	-.120	-.011	.113	.205	.306	.392	.438
	.250	.354	.320	.265	.206	.108	.041	-.026	-.137	-.172	-.092	-.014	.074	.143	.224	.297	.332
	.350	.266	.245	.195	.147	.067	.017	-.033	-.116	-.150	-.092	-.032	.041	.095	.160	.222	.251
	.450	.194	.182	.147	.105	.038	-.001	-.037	-.112	-.131	-.086	-.034	.017	.060	.114	.166	.186
	.550	.134	.125	.100	.063	.011	-.025	-.044	-.108	-.121	-.086	-.046	-.004	.028	.072	.114	.127
	.650	.075	.076	.060	.031	-.011	-.036	-.051	-.097	-.107	-.082	-.055	-.021	.003	.040	.075	.074
	.750	.018	.033	.032	.013	-.018	-.036	-.044	-.074	-.080	-.067	-.053	-.026	-.013	.016	.042	.025
	.850	-.011	.018	.037	.026	.011	.003	.012	-.008	-.007	-.004	0	.012	.015	.027	.042	.005
	.925	-.051	.004	.049	.048	.045	.045	.065	.055	.060	.056	.047	.051	.040	.046	.042	-.018
	.975	a-.120	-.024	.063	.053	.048	.059	.107	.105	.113	.103	.083	.060	.043	.056	.047	-.060
	1.000	a-.150	b-.040	b.070	b.060	b.048	b.060	b.129	b.140	b.151	b.131	b.108	b.063	b.044	b.057	b.046	b-.080

a Faired value.

b Lower surface only.

47

NACA

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

J	1.742	1.841	1.949	2.068	2.163	2.261	2.380	2.497	2.564	2.432	2.318	2.218	2.105	2.010	1.900	1.800
M_x	.542	.559	.573	.593	.606	.620	.639	.658	.669	.646	.626	.612	.595	.582	.567	.551
$\alpha_x{}'$	8.73	7.16	5.53	3.83	2.55	1.28	-.17	-1.52	-2.27	-.78	.58	1.83	3.33	4.65	6.26	7.80
$\Delta\beta$	.70	.63	.52	.38	.30	.21	.08	-.04	-.09	.03	.15	.26	.41	.44	.58	.66
α_1	2.50	2.27	1.89	1.51	1.25	.94	.60	.29	.11	.45	.77	1.09	1.41	1.63	2.04	2.39
c_n	.9277	.8453	.7098	.5742	.4748	.3558	.2268	.1135	.0435	.1752	.2952	.4106	.5355	.6181	.7673	.8879
c_m	-.0209	-.0216	-.0363	-.0439	-.0459	-.0532	-.0592	-.0637	-.0629	-.0630	-.0547	-.0489	-.0454	-.0465	-.0322	-.0195
c_c																
c/b	Pressure coefficient, P															
0.000	1.075	1.080	1.084	1.090	1.095	1.100	1.106	1.113	1.117	1.108	1.101	1.096	1.091	1.087	1.082	1.078
.025	-1.883	-2.247	-1.794	-1.094	-.773	-.394	-.079	.200	.331	.057	-.235	-.567	-.969	-1.160	-2.530	-1.942
.050	-1.807	-2.059	-1.128	-1.010	-.760	-.478	-.229	.005	.120	-.120	-.353	-.609	-.906	-1.120	-1.460	-1.877
.100	-1.609	-1.571	-.878	-.763	-.600	-.420	-.252	-.083	.003	-.174	-.338	-.507	-.694	-.852	-1.054	-1.712
.200	-1.299	-.870	-.679	-.634	-.537	-.426	-.319	-.204	-.144	-.268	-.373	-.475	-.593	-.688	-.801	-1.168
.300	-.963	-.716	-.612	-.605	-.539	-.455	-.376	-.287	-.239	-.337	-.416	-.493	-.574	-.640	-.718	-.796
.400	-.721	-.632	-.548	-.567	-.524	-.467	-.409	-.345	-.309	-.383	-.440	-.491	-.549	-.593	-.641	-.621
.500	-.544	-.531	-.453	-.493	-.463	-.424	-.386	-.340	-.314	-.367	-.406	-.440	-.479	-.509	-.540	-.503
.600	-.430	-.453	-.395	-.454	-.438	-.415	-.391	-.362	-.345	-.381	-.406	-.422	-.447	-.463	-.472	-.420
.700	-.325	-.361	-.312	-.388	-.386	-.377	-.369	-.356	-.348	-.368	-.375	-.378	-.386	-.391	-.382	-.330
.800	-.231	-.241	-.188	-.282	-.292	-.299	-.307	-.313	-.312	-.316	-.305	-.293	-.287	-.277	-.252	-.223
.900	-.132	-.067	.024	-.057	-.065	-.075	-.089	-.100	-.105	-.102	-.084	-.067	-.060	-.058	-.053	-.083
.950	-.090	.007	.108	.049	.053	.053	.046	.035	.030	.037	.047	.058	.053	.042	.020	-.022
.0375	.742	.694	.662	.433	.280	.081	-.153	-.449	-.562	-.282	-.028	.189	.374	.504	.645	.720
.075	.591	.546	.525	.325	.206	.065	-.094	-.260	-.382	-.180	-.012	.141	.278	.381	.497	.569
.150	.441	.402	.397	.224	.138	.039	-.069	-.187	-.264	-.125	-.014	.092	.189	.268	.360	.425
.250	.332	.301	.309	.157	.091	.018	-.056	-.142	-.197	-.097	-.019	.058	.132	.192	.265	.320
.350	.248	.225	.244	.107	.051	-.004	-.064	-.131	-.173	-.098	-.034	.026	.084	.135	.193	.240
.450	.184	.167	.196	.070	.024	-.016	-.068	-.118	-.151	-.094	-.041	.005	.053	.093	.141	.183
.550	.124	.116	.152	.034	-.003	-.030	-.073	-.110	-.137	-.095	-.055	-.016	.020	.055	.092	.126
.650	.068	.071	.114	.006	-.022	-.048	-.076	-.102	-.123	-.090	-.063	-.034	-.006	.021	.052	.074
.750	.021	.035	.089	-.009	-.031	-.048	-.066	-.078	-.090	-.074	-.058	-.037	-.019	.002	.020	.035
.850	-.002	.031	.098	.012	.003	.001	-.004	-.004	-.011	-.005	-.004	.005	.010	.017	.023	.023
.925	-.027	.031	.112	.042	.039	.046	.051	.063	.062	.055	.047	.044	.040	.040	.027	.015
.975	-.068	.038	.122	.042	.048	.074	.094	.114	.117	.103	.081	.062	.042	.043	.033	.005
1.000	b-.092	b.039	b.130	b.034	b.056	b.082	b.114	b.136	b.148	b.136	b.095	b.070	b.054	b.040	b.039	b-.005

Upper surface (rows 0.000–.950); Lower surface (rows .0375–1.000)

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(c) N = 1500 rpm; $\beta_{0.75R}$ = 45°.

	c/b												
	J	1.960	2.055	2.135	2.242	2.364	2.484	2.544	2.430	2.305	2.206	2.102	2.002
	M_x	.636	.653	.668	.686	.704	.726	.738	.714	.692	.675	.659	.643
	$\alpha_x{}'$	5.37	4.02	2.92	1.53	.02	−1.38	−2.05	−.76	.74	1.99	3.37	4.77
	$\Delta\beta$	.71	.59	.48	.31	.10	−.12	−.24	−.02	.20	.37	.53	.66
	α_1	2.06	1.68	1.39	1.09	.70	.35	.11	.50	.87	1.21	1.51	1.85
	c_n	.7732	.6374	.5310	.4126	.2648	.1342	.0406	.1919	.3303	.4606	.5735	.7006
	c_m	−.0288	−.0397	−.0451	−.0539	−.0626	−.0696	−.0752	−.0674	−.0577	−.0507	−.0436	−.0354
	c_c												
	c/b	Pressure coefficient, P											
Upper surface	0.000	1.105	1.111	1.117	1.124	1.131	1.139	1.144	1.135	1.126	1.119	1.113	1.107
	.025	−2.180	−1.421	−.908	−.457	−.060	.232	.358	.102	−.240	−.610	−1.034	−1.831
	.050	−2.015	−1.259	−.936	−.571	−.248	.009	.125	−.111	−.394	−.685	−1.046	−1.687
	.100	−1.062	−.852	−.707	−.501	−.277	−.089	.002	−.178	−.383	−.573	−.767	−.849
	.200	−.778	−.703	−.614	−.492	−.348	−.217	−.153	−.282	−.416	−.533	−.649	−.752
	.300	−.735	−.669	−.609	−.524	−.416	−.318	−.266	−.368	−.465	−.551	−.632	−.704
	.400	−.670	−.620	−.583	−.530	−.454	−.383	−.346	−.421	−.488	−.548	−.597	−.645
	.500	−.563	−.532	−.507	−.475	−.425	−.379	−.354	−.404	−.449	−.486	−.517	−.547
	.600	−.500	−.487	−.474	−.460	−.434	−.410	−.397	−.425	−.449	−.465	−.481	−.493
	.700	−.408	−.406	−.405	−.410	−.402	−.399	−.397	−.406	−.407	−.409	−.407	−.407
	.800	−.266	−.277	−.286	−.307	−.319	−.333	−.340	−.331	−.316	−.303	−.288	−.271
	.900	−.037	−.035	−.041	−.061	−.070	−.086	−.095	−.084	−.071	−.056	−.042	−.038
	.950	.053	.068	.072	.069	.066	.058	.051	.056	.063	.070	.066	.054
Lower surface	.0375	.600	.466	.346	.138	−.131	−.477	−.975	−.301	.004	.219	.391	.533
	.075	.464	.355	.260	.105	−.078	−.260	−.357	−.190	.008	.167	.294	.407
	.150	.337	.251	.181	.069	−.056	−.188	−.272	−.130	.001	.112	.205	.291
	.250	.269	.184	.128	.045	−.049	−.143	−.205	−.101	−.007	.075	.144	.212
	.350	.188	.132	.086	.015	−.059	−.132	−.179	−.102	−.027	.044	.099	.156
	.450	.138	.092	.053	−.005	−.065	−.122	−.160	−.100	−.038	.016	.063	.112
	.550	.094	.053	.021	−.028	−.072	−.117	−.145	−.101	−.057	−.007	.031	.067
	.650	.054	.023	−.004	−.043	−.075	−.106	−.125	−.097	−.065	−.027	.001	.034
	.750	.017	−.005	−.024	−.050	−.066	−.080	−.090	−.081	−.063	−.039	−.020	.001
	.850	.030	.019	.010	−.001	−.001	.002	−.002	−.007	−.007	.004	.010	.018
	.925	.040	.042	.040	.045	.058	.072	.074	.060	.049	.047	.037	.034
	.975	.017	.035	.046	.069	.101	.125	.131	.110	.084	.065	.039	.018
	1.000	[b].011	[b].020	[b].042	[b].080	[a].122	[a].147	[a].149	[a].131	[b].099	[b].071	[b].045	[b]−.012

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(d) N = 1600 rpm; $\beta_{0.75R} = 45°$.

J	2.032	2.130	2.223	2.324	2.418	2.494	2.513	2.516	2.461	2.372	2.280	2.182	2.095
M_x	.702	.718	.733	.752	.771	.786	.790	.790	.777	.759	.741	.723	.708
α_x'	4.34	2.99	1.77	.51	−.62	−1.49	−1.70	−1.74	−1.12	−.08	1.05	2.30	3.46
$\Delta\beta$	.69	.53	.37	.18	−.04	−.24	−.30	−.31	−.15	.08	.26	.44	.59
α_i	1.88	1.51	1.20	.86	.56	.25	.08	.09	.36	.70	1.00	1.34	1.64
c_n	.7155	.5748	.4555	.3284	.2129	.0974	.0316	.0329	.1377	.2661	.3823	.5077	.6252
c_m	−.0380	−.0452	−.0556	−.0694	−.0740	−.0783	−.0850	−.0839	−.0760	−.0729	−.0633	−.0551	−.0492
c_c				.0070	.0130	.0150	.0160	.0149	.0133	.0102			

	c/b	Pressure coefficient, P												
Upper surface	0.000	1.130	1.136	1.142	1.150	1.158	1.164	1.166	1.166	1.161	1.153	1.146	1.138	1.132
	.025	−1.427	−.924	−.482	−.117	.152	.331	.374	.384	.264	.023	−.255	−.658	−1.203
	.050	−1.509	−1.095	−.642	−.315	−.073	.096	.136	.146	.031	−.191	−.436	−.808	−1.270
	.100	−1.327	−.761	−.565	−.343	−.161	−.028	.007	.016	−.082	−.251	−.430	−.654	−.889
	.200	−.692	−.681	−.556	−.412	−.280	−.181	−.154	−.146	−.222	−.348	−.468	−.605	−.728
	.300	−.750	−.696	−.608	−.501	−.397	−.314	−.291	−.282	−.348	−.452	−.541	−.637	−.717
	.400	−.690	−.654	−.613	−.545	−.470	−.412	−.396	−.389	−.443	−.513	−.568	−.623	−.661
	.500	−.573	−.554	−.535	−.510	−.467	−.427	−.415	−.409	−.445	−.492	−.516	−.536	−.559
	.600	−.513	−.507	−.510	−.518	−.511	−.501	−.499	−.492	−.506	−.518	−.511	−.504	−.508
	.700	−.421	−.422	−.436	−.462	−.468	−.493	−.503	−.499	−.482	−.472	−.451	−.426	−.420
	.800	−.275	−.282	−.309	−.341	−.348	−.362	−.370	−.369	−.358	−.356	−.328	−.296	−.280
	.900	−.025	−.025	−.036	−.056	−.060	−.067	−.075	−.071	−.071	−.073	−.058	−.035	−.031
	.950	.071	.080	.087	.079	.074	.073	.069	.075	.074	.071	.083	.087	.072
Lower surface	.0375	.501	.353	.176	−.064	−.336	−.819	−1.008	−1.025	−.580	−.201	.039	.267	.421
	.075	.386	.268	.135	−.032	−.201	−.310	−.708	−.765	−.271	−.126	.035	.201	.319
	.150	.280	.187	.090	−.026	−.139	−.257	−.278	−.274	−.216	−.091	.018	.139	.227
	.250	.206	.132	.058	−.029	−.111	−.202	−.233	−.231	−.169	−.074	.004	.094	.162
	.350	.146	.084	.021	−.048	−.112	−.184	−.213	−.211	−.158	−.086	−.020	.054	.109
	.450	.103	.049	.002	−.054	−.108	−.164	−.188	−.185	−.143	−.087	−.031	.024	.071
	.550	.063	.015	−.021	−.068	−.109	−.154	−.173	−.170	−.138	−.094	−.050	−.005	.032
	.650	.027	−.011	−.038	−.072	−.103	−.134	−.148	−.145	−.123	−.093	−.058	−.026	.003
	.750	.007	−.023	−.046	−.066	−.082	−.098	−.109	−.104	−.094	−.078	−.060	−.033	−.013
	.850	.027	−.009	.005	.003	0	−.005	−.011	−.006	−.006	−.003	.001	.009	.015
	.925	.049	.043	.047	.064	.070	.073	.068	.073	.069	.063	.054	.048	.042
	.975	.058	.039	.068	.108	.132	.131	.127	.131	.126	.115	.088	.054	.042
	1.000	b.058	b.030	b.075	b.128	b.164	b.160	b.155	b.155	b.160	b.141	b.105	b.057	b.040

b Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(e) M = 0.56; $\beta_{0.75R}$ = 45°.

J	2.119	2.164	2.200	2.232	2.261	2.299	2.330	2.361	2.396	2.426	2.452	2.492	2.541
M_x	.775	.771	.766	.760	.756	.750	.749	.744	.740	.733	.730	.725	.720
α_x'	3.14	2.54	2.07	1.66	1.29	.81	.43	.06	-.36	-.71	-1.01	-1.47	-2.01
$\Delta\beta$	.51	.43	.36	.31	.26	.20	.15	.10	.04	-.01	-.05	-.11	-.18
α_1	1.61	1.40	1.31	1.19	1.05	.89	.82	.68	.59	.47	.41	.28	.11
c_n	.6148	.5310	.4987	.4506	.3977	.3410	.3106	.3590	.2229	.1790	.1548	.1065	.0419
c_m	-.0601	-.0580	-.0608	-.0617	-.0639	-.0655	-.0673	-.0696	-.0696	-.0701	-.0698	-.0732	-.0747
c_c	-.0088	-.0042	-.0016	.0006	.0030	.0061	.0075						

c/b	Pressure coefficient, P												

	c/b													
Upper surface	0.000	1.160	1.158	1.156	1.153	1.152	1.149	1.149	1.147	1.145	1.142	1.141	1.139	1.137
	.025	-.624	-.516	-.452	-.367	-.277	-.160	-.086	.005	.083	.154	.196	.278	.366
	.050	-.893	-.781	-.666	-.553	-.458	-.348	-.277	-.196	-.126	-.063	-.022	.110	.136
	.100	-.775	-.600	-.568	-.507	-.440	-.362	-.309	-.249	-.194	-.145	-.113	-.058	.012
	.200	-.739	-.640	-.586	-.536	-.483	-.426	-.384	-.340	-.297	-.257	-.234	-.192	-.135
	.300	-.736	-.698	-.673	-.632	-.569	-.513	-.473	-.434	-.394	-.357	-.335	-.301	-.250
	.400	-.804	-.743	-.694	-.661	-.605	-.552	-.513	-.481	-.444	-.413	-.393	-.364	-.322
	.500	-.715	-.648	-.608	-.581	-.540	-.510	-.482	-.461	-.432	-.408	-.392	-.374	-.336
	.600	-.617	-.603	-.584	-.564	-.536	-.518	-.493	-.484	-.460	-.441	-.428	-.418	-.382
	.700	-.432	-.447	-.454	-.460	-.453	-.453	-.445	-.442	-.427	-.418	-.410	-.409	-.382
	.800	-.267	-.279	-.294	-.308	-.312	-.328	-.330	-.344	-.341	-.341	-.338	-.347	-.332
	.900	-.005	-.012	-.021	-.032	-.038	-.055	-.060	-.072	-.073	-.080	-.085	-.100	-.103
	.950	.101	.097	.096	.094	.093	.079	.075	.064	.061	.051	.045	.031	.033

	c/b													
Lower surface	.0375	.312	.233	.186	.120	.061	-.035	-.094	-.184	-.259	-.350	-.410	-.610	-.948
	.075	.242	.182	.146	.097	.056	-.014	-.051	-.111	-.157	-.213	-.239	-.306	-.371
	.150	.172	.125	.098	.063	.033	-.015	-.040	-.083	-.111	-.148	-.171	-.226	-.271
	.250	.122	.085	.065	.037	.017	-.021	-.036	-.066	-.087	-.113	-.130	-.170	-.201
	.350	.073	.044	.028	.005	-.009	-.039	-.052	-.076	-.091	-.112	-.126	-.156	-.177
	.450	.041	.017	.007	-.009	-.021	-.046	-.056	-.076	-.087	-.104	-.113	-.138	-.153
	.550	.006	-.014	-.018	-.033	-.040	-.062	-.068	-.084	-.092	-.105	-.112	-.129	-.139
	.650	-.021	-.037	-.040	-.051	-.057	-.072	-.075	-.087	-.091	-.100	-.105	-.117	-.122
	.750	-.033	-.048	-.050	-.057	-.057	-.069	-.067	-.074	-.075	-.080	-.083	-.089	-.089
	.850	.008	.001	.002	-.003	.001	-.003	0	-.002	0	-.001	-.002	.003	0
	.925	.047	.040	.044	.045	.053	.054	.063	.065	.071	.070	.073	.077	.080
	.975	.051	.049	.061	.068	.081	.098	.112	.122	.132	a.124	.140	.146	.146
	1.000	b.050	b.056	b.064	b.075	b.089	b.107	b.135	b.149	b.160	a.151	a.164	a.170	a.181

CONFIDENTIAL

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(f) M = 0.60; $\beta_{0.75R} = 45°$.

	J	2.136	2.172	2.210	2.239	2.266	2.297	2.321	2.365	2.391	2.420	2.453	2.486	2.526
	M_x	.834	.828	.821	.814	.809	.807	.801	.799	.793	.789	.785	.780	.775
	α_x'	2.91	2.43	1.94	1.57	1.22	.83	.54	.01	−.30	−.64	−1.02	−1.40	−1.85
	$\Delta\beta$	.36	.33	.28	.24	.19	.12	.08	0	−.05	−.10	−.17	−.22	−.29
	α_1	1.42	1.36	1.24	1.10	1.04	.87	.79	.66	.57	.47	.37	.25	.11
	c_n	.5387	.5174	.4690	.4168	.3965	.3310	.3000	.2532	.2161	.1806	.1406	.0968	.0406
	c_m	−.0796	−.0869	−.0819	−.0798	−.0757	−.0749	−.0734	−.0737	−.0731	−.0746	−.0776	−.0765	−.0783
	c_c	.0106	.0079	.0059	.0072	.0074	.0091	.0099	.0118	.0127	.0132	.0145	.0148	.0150
	c/b						Pressure coefficient, P							
Upper surface	0.000	1.186	1.183	1.180	1.177	1.175	1.174	1.171	1.170	1.167	1.166	1.164	1.162	1.160
	.025	−.316	−.275	−.225	−.151	−.114	−.027	.024	.101	.158	.207	.266	.321	.379
	.050	−.629	−.554	−.468	−.375	−.334	−.248	−.198	−.125	−.071	−.024	.033	.087	.145
	.100	−.466	−.453	−.429	−.375	−.349	−.286	−.251	−.194	−.154	−.118	−.073	−.032	.016
	.200	−.609	−.575	−.516	−.454	−.432	−.387	−.361	−.318	−.287	−.256	−.224	−.187	−.148
	.300	−.669	−.618	−.588	−.557	−.549	−.523	−.497	−.449	−.415	−.383	−.352	−.317	−.277
	.400	−.708	−.686	−.664	−.642	−.621	−.579	−.566	−.542	−.514	−.480	−.447	−.412	−.374
	.500	−.749	−.732	−.715	−.662	−.638	−.584	−.556	−.531	−.505	−.485	−.460	−.431	−.397
	.600	−.809	−.792	−.752	−.694	−.666	−.643	−.626	−.603	−.576	−.553	−.552	−.498	−.433
	.700	−.841	−.865	−.780	−.723	−.691	−.639	−.605	−.567	−.539	−.512	−.501	−.478	−.431
	.800	−.274	−.244	−.237	−.258	−.273	−.299	−.315	−.323	−.333	−.339	−.349	−.358	−.364
	.900	−.149	−.079	−.017	0	.001	−.010	−.021	−.026	−.036	−.044	−.054	−.065	−.076
	.950	−.103	0	.069	.096	.102	.104	.101	.102	.098	.093	.086	.080	.073
Lower surface	.0375	.197	.149	.100	.030	−.008	−.098	−.167	−.252	−.338	−.426	−.596	−.781	−.989
	.075	.158	.122	.087	.036	.010	−.053	−.099	−.149	−.199	−.239	−.263	−.279	−.523
	.150	.109	.082	.058	.022	.003	−.041	−.074	−.107	−.139	−.172	−.218	−.251	−.274
	.250	.067	.047	.031	.005	−.008	−.042	−.067	−.090	−.116	−.138	−.172	−.195	−.220
	.350	.025	.008	−.003	−.023	−.033	−.060	−.081	−.097	−.117	−.136	−.159	−.175	−.194
	.450	−.012	−.020	−.026	−.041	−.049	−.070	−.088	−.100	−.116	−.128	−.147	−.156	−.170
	.550	−.052	−.054	−.055	−.065	−.070	−.087	−.100	−.109	−.118	−.126	−.142	−.146	−.153
	.650	−.090	−.083	−.078	−.084	−.083	−.096	−.105	−.109	−.116	−.118	−.128	−.130	−.133
	.750	−.116	−.099	−.085	−.084	−.081	−.086	−.092	−.090	−.092	−.093	−.099	−.094	−.092
	.850	−.080	−.048	−.026	−.018	−.012	−.013	−.016	−.011	−.013	−.010	−.010	−.004	.002
	.925	−.066	−.014	.018	.033	.041	.046	.047	.055	.058	.060	.063	.073	.077
	.975	−.103	−.024	.029	.054	.067	.079	.084	.098	.103	.108	.113	.124	.130
	1.000	[b]−.133	[b]−.032	[b].028	[b].062	[b].079	[b].092	[b].101	[b].126	[b].127	[b].131	[b].133	[b].165	[b].151

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(g) $M = 0.66$; $\beta_{0.75R} = 45°$

J	2.084	2.112	2.145	2.160	2.204	2.222	2.243	2.284	2.312	2.347	2.362	2.428
M_x	.924	.918	.914	.905	.900	.894	.887	.882	.878	.873	.863	.853
$\alpha_x{}'$	3.62	3.23	2.79	2.59	2.02	1.78	1.52	1.00	.65	.23	.05	−.73
$\Delta\beta$	.48	.40	.31	.28	.17	.14	.09	−.01	−.07	−.16	−.20	−.38
α_1	1.17	1.08	.94	.85	.81	.69	.59	.49	.43	.34	.28	.14
c_n	.4439	.4097	.3568	.3239	.3077	.2626	.2239	.1865	.1626	.1303	.1052	.0542
c_m	−.0898	−.0765	−.0682	−.0629	−.0582	−.0539	−.0515	−.0511	−.0542	−.0608	−.0652	−.0829
c_c	.0321·	.0295	.0293	.0301	.0288	.0282	.0268	.0253	.0238	.0236	.0231	.0213

	c/b	Pressure coefficient, P											
Upper surface	0.000	1.232	1.228	1.226	1.222	1.219	1.216	1.212	1.209	1.207	1.205	1.199	1.195
	.025	−.061	−.040	−.005	.015	.034	.079	.118	.164	.200	.242	.279	.346
	.050	−.372	−.344	−.274	−.238	−.213	−.161	−.117	−.068	−.035	.007	.044	.112
	.100	−.253	−.239	−.236	−.234	−.225	−.196	−.169	−.135	−.111	−.079	−.051	−.001
	.200	−.409	−.395	−.371	−.363	−.351	−.312	−.283	−.252	−.235	−.211	−.191	−.154
	.300	−.483	−.471	−.450	−.441	−.431	−.412	−.400	−.376	−.370	−.360	−.350	−.305
	.400	−.543	−.529	−.512	−.513	−.511	−.495	−.486	−.471	−.465	−.442	−.429	−.414
	.500	−.580	−.570	−.558	−.564	−.563	−.548	−.543	−.524	−.509	−.486	−.475	−.431
	.600	−.647	−.638	−.635	−.646	−.645	−.629	−.623	−.604	−.593	−.577	−.565	−.536
	.700	−.728	−.723	−.722	−.731	−.728	−.718	−.715	−.697	−.689	−.674	−.662	−.647
	.800	−.673	−.501	−.450	−.497	−.421	−.351	−.313	−.285	−.280	−.326	−.416	−.568
	.900	−.351	−.304	−.279	−.282	−.255	−.226	−.199	−.166	−.143	−.119	−.102	−.053
	.950	−.350	−.302	−.274	−.273	−.243	−.215	−.184	−.148	−.115	−.080	−.046	.032

	c/b												
Lower surface	.0375	.181	.172	.097	.045	.008	−.069	−.148	−.227	−.319	−.439	−.580	−.770
	.075	.156	.154	.097	.057	.031	−.025	−.078	−.124	−.173	−.232	−.363	−.631
	.150	.116	.117	.072	.039	.017	−.025	−.067	−.098	−.135	−.173	−.214	−.244
	.250	.080	.082	.044	.018	−.002	−.036	−.068	−.091	−.120	−.147	−.179	−.226
	.350	.029	.034	−.001	−.005	−.044	−.072	−.100	−.119	−.143	−.163	−.188	−.226
	.450	−.012	−.007	−.037	−.064	−.077	−.103	−.126	−.143	−.161	−.175	−.196	−.223
	.550	−.072	−.065	−.093	−.119	−.130	−.153	−.175	−.186	−.199	−.207	−.221	−.234
	.650	−.139	−.132	−.157	−.182	−.191	−.211	−.225	−.230	−.232	−.229	−.235	−.226
	.750	−.225	−.218	−.238	−.262	−.268	−.279	−.281	−.268	−.248	−.225	−.220	−.186
	.850	−.215	−.204	−.217	−.237	−.235	−.235	−.221	−.195	−.166	−.137	−.126	−.077
	.925	−.221	−.208	−.220	−.238	−.233	−.227	−.201	−.164	−.128	−.091	−.068	.005
	.975	−.346	−.344	−.356	−.374	−.361	−.329	−.270	−.208	−.159	−.103	−.060	.047
	1.000	b−.466	b−.492	b−.509	b−.496	b−.511	b−.414	b−.320	b−.261	b−.187	b−.130	b−.061	b.079

bLower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(h) N = 1140 rpm; $\beta_{0.75R} = 30°$.

J	0.774	0.890	0.984	1.070	1.200	1.272	1.383	1.480	1.441	1.335	1.246	1.153	1.030	0.940	0.830
M_x	.365	.370	.381	.393	.408	.415	.423	.438	.434	.418	.406	.401	.393	.381	.361
α_x'	13.44	10.65	8.47	6.55	3.76	2.28	.09	-1.73	-1.01	1.02	2.81	4.75	7.43	9.48	12.08
$\Delta\beta$	.35	.33	.30	.25	.18	.14	.08	.02	.04	.11	.16	.21	.27	.31	.34
α_i	2.89	2.82	2.48	2.03	1.38	1.03	.61	.20	.39	.80	1.21	1.65	2.29	2.67	2.80
c_n	.9238	.9300	.8320	.6910	.4753	.3582	.2124	.0719	.1377	.2783	.4201	.5655	.7740	.8904	.9051
c_m	-.0853	-.0468	-.0181	-.0357	-.0410	-.0441	-.0535	-.0560	-.0543	-.0478	-.0404	-.0391	-.0246	-.0134	-.0688
c_c															
c/b							Pressure coefficient, P								
Upper surface															
0.000	1.034	1.035	1.037	1.039	1.043	1.044	1.046	1.049	1.048	1.045	1.042	1.041	1.039	1.037	1.033
.025	-1.310	-1.316	-1.630	-1.994	-.850	-.500	-.099	.218	.087	-.265	-.666	-1.091	-2.280	-1.963	-1.491
.050	-1.273	-1.320	-1.656	-1.346	-.794	-.533	-.235	.026	-.082	-.361	-.650	-.963	-1.831	-1.963	-1.428
.100	-1.069	-1.289	-1.634	-.845	-.611	-.442	-.247	-.061	-.129	-.332	-.520	-.728	-1.144	-1.822	-1.171
.200	-.913	-1.216	-1.094	-.686	-.517	-.409	-.289	-.153	-.205	-.338	-.452	-.583	-.727	-1.055	-.950
.300	-.840	-1.084	-.685	-.624	-.504	-.422	-.334	-.228	-.262	-.368	-.459	-.548	-.638	-.731	-.852
.400	-.780	-.891	-.534	-.573	-.487	-.432	-.359	-.274	-.297	-.390	-.452	-.515	-.579	-.594	-.765
.500	-.708	-.663	-.445	-.486	-.424	-.379	-.340	-.274	-.290	-.351	-.395	-.442	-.487	-.467	-.662
.600	-.648	-.486	-.384	-.435	-.396	-.371	-.353	-.302	-.309	-.351	-.377	-.410	-.431	-.387	-.578
.700	-.584	-.354	-.309	-.370	-.355	-.342	-.343	-.305	-.309	-.335	-.340	-.357	-.357	-.307	-.499
.800	-.524	-.257	-.220	-.268	-.275	-.274	-.299	-.274	-.272	-.285	-.269	-.268	-.254	-.223	-.428
.900	-.456	-.164	-.081	-.075	-.078	-.086	-.122	-.138	-.107	-.101	-.075	-.067	-.080	-.128	-.365
.950	-.416	-.122	-.018	.015	.033	.031	-.003	-.005	.009	.020	.038	.035	.001	-.089	-.333
Lower surface															
.0375	.795	.763	.703	.604	.355	.169	-.142	-.432	-.272	.010	.272	.483	.655	.758	.773
.075	.643	.612	.553	.459	.257	.122	-.099	-.271	-.173	.010	.198	.355	.504	.598	.622
.150	.487	.462	.406	.324	.171	.072	-.080	-.197	-.126	-.006	.129	.250	.363	.445	.464
.250	.362	.350	.305	.233	.116	.046	-.074	-.153	-.095	-.016	.085	.176	.267	.338	.350
.350	.274	.264	.230	.171	.074	.018	-.074	-.135	-.088	-.029	.048	.122	.201	.258	.263
.450	.194	.198	.174	.124	.043	-.005	-.074	-.122	-.088	-.042	.023	.088	.149	.193	.188
.550	.114	.133	.125	.085	.012	-.022	-.080	-.116	-.088	-.052	0	.052	.101	.136	.121
.650	.038	.079	.080	.048	-.009	-.039	-.080	-.104	-.079	-.055	-.020	.024	.061	.083	.054
.750	-.039	.024	.043	.026	-.019	-.043	-.077	-.085	-.067	-.055	-.027	.010	.035	.037	-.017
.850	-.103	-.006	.035	.033	.008	.001	-.016	-.014	-.001	-.003	.007	.028	.038	.014	-.069
.925	-.183	-.034	.031	.048	.036	.035	.035	.051	.059	.043	.041	.049	.046	-.009	-.131
.975	-.315	-.090	.024	.048	.036	.052	.080	.106	.109	.067	.045	.045	.057	-.059	-.243
1.000	b-.440	b-.139	b.021	b.052	b.037	b.057	a.104	a.137	a.141	a.080	a.044	b.039	a.061	b-.091	a-.304

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(i) N = 1350 rpm; $\beta_{0.75R} = 30°$.

J	0.875	0.952	1.047	1.120	1.198	1.285	1.383	1.493	1.437	1.355	1.242	1.167	1.072	1.041	0.995	0.904
M_x	.445	.449	.463	.472	.482	.494	.509	.522	.512	.503	.492	.483	.468	.461	.457	.446
α_x'	11.01	9.20	7.05	5.45	3.81	2.02	.10	-1.97	-.94	.63	2.89	4.45	6.51	7.09	8.22	10.32
$\Delta\beta$	.37	.31	.22	.14	.04	-.07	-.19	-.34	-.26	-.16	-.01	.08	.19	.22	.27	.35
α_i	2.95	2.66	2.25	1.85	1.44	1.00	.60	.15	.34	.76	1.20	1.63	2.10	2.29	2.46	2.81
c_n	.9681	.8867	.7600	.6299	.4980	.3474	.2111	.0548	.1189	.2668	.4161	.5569	.7116	.7720	.8256	.9294
c_m	-.0691	-.0215	-.0246	-.0371	-.0412	-.0442	-.0487	-.0542	-.0524	-.0480	-.0421	-.0413	-.0333	-.0249	-.0182	-.0586
c_c																

c/b	Pressure coefficient, P															

Upper surface	c/b																
	0.000	1.051	1.052	1.055	1.057	1.060	1.062	1.066	1.070	1.067	1.065	1.062	1.060	1.056	1.055	1.054	1.051
	.025	-1.587	-1.817	-2.193	-1.247	-.870	-.453	-.084	.259	.119	-.229	-.651	-1.045	-2.048	-2.095	-1.805	-1.340
	.050	-1.484	-1.744	-1.871	-1.097	-.821	-.507	-.228	.059	-.064	-.339	-.651	-.946	-1.460	-1.914	-1.830	-1.333
	.100	-1.233	-1.549	-1.119	-.835	-.635	-.435	-.240	-.037	-.125	-.315	-.526	-.721	-.892	-1.231	-1.744	-1.247
	.200	-1.092	-1.196	-.738	-.660	-.535	-.410	-.285	-.147	-.209	-.332	-.474	-.591	-.716	-.726	-.997	-1.164
	.300	-1.008	-.906	-.659	-.605	-.516	-.427	-.330	-.221	-.271	-.363	-.474	-.556	-.648	-.649	-.665	-1.059
	.400	-.897	-.681	-.599	-.568	-.504	-.440	-.371	-.281	-.323	-.395	-.474	-.531	-.595	-.594	-.577	-.921
	.500	-.744	-.509	-.504	-.477	-.429	-.388	-.333	-.269	-.300	-.349	-.410	-.459	-.500	-.499	-.494	-.743
	.600	-.612	-.400	-.442	-.432	-.405	-.378	-.340	-.295	-.314	-.349	-.395	-.420	-.446	-.436	-.427	-.584
	.700	-.479	-.306	-.362	-.372	-.359	-.347	-.326	-.297	-.314	-.329	-.354	-.368	-.373	-.356	-.346	-.446
	.800	-.367	-.220	-.254	-.268	-.275	-.283	-.278	-.272	-.278	-.276	-.280	-.277	-.268	-.249	-.243	-.334
	.900	-.261	-.116	-.068	-.062	-.117	-.081	-.094	-.102	-.097	-.084	-.074	-.062	-.068	-.066	-.087	-.233
	.950	-.215	-.071	.013	.041	.048	.038	.029	.006	.021	.038	.044	.048	.027	.018	-.021	-.188

Lower surface	c/b																
	.0375	.780	.736	.655	.541	.372	.135	-.132	-.474	-.314	-.006	.255	.450	.611	.660	.685	.722
	.075	.625	.587	.503	.410	.272	.098	-.086	-.297	-.205	.004	.184	.333	.465	.510	.532	.574
	.150	.475	.432	.364	.287	.184	.059	-.067	-.210	-.144	-.006	.120	.231	.330	.371	.388	.425
	.250	.360	.328	.269	.205	.127	.031	-.062	-.160	-.113	-.013	.076	.160	.243	.275	.285	.317
	.350	.271	.247	.198	.147	.084	.001	-.064	-.143	-.108	-.028	.041	.110	.178	.207	.212	.233
	.450	.205	.186	.146	.105	.050	-.014	-.067	-.127	-.101	-.035	.015	.073	.130	.154	.154	.167
	.550	.141	.132	.102	.065	.021	-.029	-.069	-.118	-.097	-.045	-.008	.043	.087	.109	.104	.107
	.650	.078	.081	.065	.041	.004	-.038	-.075	-.106	-.090	-.049	-.020	.018	.054	.070	.059	.053
	.750	.006	.019	.019	.002	-.024	-.057	-.075	-.088	-.083	-.057	-.044	-.015	.010	.024	.006	-.016
	.850	-.014	.017	.035	.026	.014	-.004	-.012	-.014	-.012	-.001	.003	.018	.032	.042	.018	-.030
	.925	-.001	-.006	.040	.041	.040	.033	.038	.050	.046	.043	.033	.040	.038	.046	.012	-.068
	.975	-.161	-.076	.015	.021	.042	.051	.079	.101	.091	.076	.044	.035	.016	.016	-.032	-.165
	1.000	b-.139	b-.075	b.012	b.011	b.055	b.055	b.097	a.148	a.120	b.095	b.050	b.038	b0	b.009	b-.063	b-.184

[a]Faired value.
[b]Lower surface only.

NACA

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(j) N = 1500 rpm; $\beta_{0.75R}$ = 30°.

	0.823	0.894	0.970	1.042	1.113	1.193	1.291	1.375	1.490	1.430	1.341	1.246	1.163	1.081	0.923	0.998	0.860
J	0.823	0.894	0.970	1.042	1.113	1.193	1.291	1.375	1.490	1.430	1.341	1.246	1.163	1.081	0.923	0.998	0.860
M_x	.492	.505	.515	.523	.529	.540	.557	.562	.578	.569	.559	.545	.536	.526	.504	.514	.498
α_x'	12.25	10.56	8.79	7.17	5.61	3.91	1.90	.25	-1.92	-.80	.91	2.81	4.54	6.30	9.88	8.15	11.36
$\Delta\beta$	.44	.40	.34	.26	.16	.04	-.12	-.25	-.43	-.34	-.19	-.05	.08	.21	.38	.31	.42
α_1	3.28	2.96	2.69	2.38	1.98	1.55	1.08	.66	.17	.42	.82	1.28	1.70	2.05	2.81	2.53	2.98
c_n	1.0650	.9762	.8969	.8014	.6717	.5300	.3751	.2308	.0594	.1493	.2875	.4436	.5799	.6977	.9287	.8468	.9790
c_m	-.0894	-.0634	-.0147	-.0255	-.0369	-.0435	-.0471	-.0545	-.0569	-.0594	-.0505	-.0505	-.0404	-.0404	-.0269	-.0144	-.0949
c_c																	

c/b	Pressure coefficient, P																

Upper surface

c/b																	
0.000	1.062	1.065	1.068	1.070	1.072	1.075	1.080	1.081	1.086	1.083	1.080	1.076	1.074	1.071	1.065	1.067	1.063
.025	-1.283	-1.323	-1.820	-2.236	-1.453	-.952	-.480	-.095	.272	.094	-.239	-.678	-1.094	-2.014	-1.945	-2.057	-1.077
.050	-1.291	-1.287	-1.735	-1.979	-1.168	-.908	-.552	-.254	.056	-.095	-.367	-.694	-.917	-1.406	-1.850	-1.959	-1.091
.100	-1.291	-1.266	-1.641	-1.246	-.898	-.694	-.462	-.260	-.037	-.147	-.336	-.553	-.768	-.952	-1.555	-1.690	-1.091
.200	-1.253	-1.230	-1.277	-.784	-.710	-.578	-.434	-.306	-.152	-.230	-.356	-.491	-.627	-.747	-1.215	-.981	-1.087
.300	-1.170	-1.117	-.885	-.701	-.652	-.560	-.453	-.361	-.237	-.299	-.397	-.497	-.592	-.677	-.943	-.711	-1.042
.400	-1.058	-.959	-.640	-.633	-.599	-.536	-.457	-.395	-.299	-.348	-.422	-.491	-.559	-.616	-.748	-.606	-.972
.500	-.889	-.767	-.490	-.536	-.509	-.464	-.413	-.365	-.294	-.331	-.383	-.433	-.480	-.521	-.578	-.510	-.848
.600	-.733	-.599	-.396	-.465	-.458	-.430	-.399	-.369	-.315	-.342	-.383	-.410	-.442	-.460	-.460	-.431	-.724
.700	-.585	-.450	-.310	-.380	-.389	-.381	-.367	-.357	-.323	-.342	-.342	-.361	-.384	-.387	-.354	-.354	-.593
.800	-.457	-.332	-.215	-.263	-.276	-.285	-.295	-.304	-.292	-.297	-.298	-.286	-.283	-.271	-.262	-.233	-.476
.900	-.318	-.224	-.100	-.078	-.064	-.066	-.083	-.099	-.105	-.103	-.093	-.070	-.063	-.067	-.174	-.082	-.356
.950	-.255	-.178	-.053	.002	.030	.046	.040	.027	.017	.022	.035	.049	.047	.024	-.138	-.022	-.303

Lower surface

c/b																	
.0375	.805	.763	.734	.659	.566	.399	.152	-.133	-.507	-.300	-.018	.269	.469	.615	.758	.703	.768
.075	.655	.611	.584	.506	.427	.295	.109	-.085	-.311	-.194	-.010	.194	.349	.470	.604	.552	.622
.150	.498	.463	.433	.366	.300	.200	.066	-.070	-.224	-.139	-.018	.126	.240	.339	.451	.402	.471
.250	.380	.350	.325	.268	.218	.140	.034	-.062	-.169	-.107	-.027	.083	.170	.248	.339	.300	.354
.350	.284	.264	.245	.195	.153	.090	.007	-.066	-.150	-.107	-.039	.045	.115	.178	.253	.225	.267
.450	.208	.196	.182	.142	.106	.055	-.010	-.070	-.136	-.103	-.045	.017	.076	.130	.188	.165	.194
.550	.134	.129	.123	.094	.064	.022	-.028	-.078	-.126	-.101	-.059	-.008	.040	.085	.124	.111	.121
.650	.065	.064	.069	.051	.030	-.003	-.044	-.080	-.113	-.097	-.068	-.027	.011	.046	.065	.062	.055
.750	-.001	.012	.027	.021	.008	-.016	-.052	-.072	-.089	-.079	-.064	-.039	-.006	.019	.015	.025	-.011
.850	-.040	-.022	.010	.021	.020	.011	-.003	-.013	-.014	-.014	-.010	.004	.016	.028	-.012	.016	-.057
.925	-.083	-.060	-.006	.028	.039	.040	.034	.037	.012	.044	.035	.037	.040	.041	-.045	.011	-.113
.975	[a]-.140	-.115	-.029	.032	.030	.032	.051	.074	.101	.092	.064	.039	.032	.048	-.092	0	-.199
1.000	[a]-.187	[b]-.150	[b]-.037	[b].033	[b].028	[b].032	[b].060	[b].087	[a].163	[b].115	[b].127	[b].040	[b].030	[b].049	[b]-.126	[b]-.011	[b]-.249

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(k) N = 1600 rpm; $\beta_{0.75R}$ = 30°.

J	0.843	0.920	0.980	1.059	1.134	1.215	1.301	1.367	1.480	1.439	1.345	1.263	1.189	1.106	1.029	0.949	0.892
M_x	.528	.545	.547	.557	.584	.580	.594	.600	.615	.610	.598	.589	.574	.563	.553	.549	.536
$\alpha_x{}'$	11.77	9.95	8.56	6.79	5.15	3.45	1.70	.40	-1.73	-.97	.83	2.46	3.99	5.76	7.46	9.27	10.60
$\Delta\beta$	.62	.53	.45	.33	.20	.05	-.11	-.24	-.47	-.39	-.20	-.04	.10	.25	.37	.49	.57
α_i	3.11	2.89	2.69	2.36	1.87	1.46	1.03	.71	.16	.41	.83	1.25	1.62	2.00	2.50	2.77	3.05
c_n	1.0106	.9572	.8982	.7995	.6372	.5039	.3571	.2463	.0571	.1429	.2888	.4308	.5550	.6790	.8423	.9243	1.0050
c_m	-.1049	-.0385	-.0151	-.0256	-.0393	-.0418	-.0490	-.0522	-.0594	-.0557	-.0506	-.0448	-.0416	-.0369	-.0179	-.0139	-.0547
c_c																	

	c/b							Pressure coefficient, P										
Upper surface	0.000	1.071	1.076	1.077	1.080	1.088	1.086	1.091	1.092	1.097	1.096	1.092	1.090	1.085	1.081	1.078	1.077	1.074
	.025	-1.134	-1.780	-1.963	-2.301	-1.146	-.857	-.416	-.130	.277	.119	-.230	-.634	-.999	-1.480	-2.287	-2.031	-1.834
	.050	-1.130	-1.708	-1.884	-1.789	-1.150	-.846	-.514	-.289	.054	-.078	-.367	-.672	-.961	-1.189	-2.073	-1.908	-1.516
	.100	-1.102	-1.517	-1.703	-1.151	-.867	-.652	-.438	-.285	-.043	-.136	-.342	-.546	-.728	-.922	-1.508	-1.724	-1.284
	.200	-1.071	-1.276	-1.221	-.791	-.695	-.559	-.425	-.327	-.163	-.227	-.360	-.490	-.608	-.730	-.852	-1.296	-1.241
	.300	-1.034	-1.009	-.856	-.709	-.650	-.553	-.454	-.380	-.251	-.302	-.404	-.503	-.586	-.672	-.717	-.903	-1.101
	.400	-.976	-.797	-.645	-.638	-.602	-.536	-.465	-.413	-.314	-.352	-.430	-.502	-.559	-.617	-.634	-.671	-.929
	.500	-.880	-.622	-.507	-.538	-.515	-.469	-.420	-.382	-.311	-.336	-.393	-.446	-.484	-.522	-.530	-.517	-.738
	.600	-.775	-.497	-.413	-.467	-.468	-.437	-.409	-.384	-.334	-.348	-.391	-.423	-.449	-.469	-.451	-.414	-.582
	.700	-.654	-.383	-.321	-.379	-.400	-.388	-.379	-.367	-.343	-.346	-.369	-.382	-.394	-.393	-.363	-.323	-.443
	.800	-.539	-.291	-.218	-.252	-.284	-.291	-.300	-.305	-.307	-.300	-.300	-.295	-.290	-.272	-.240	-.228	-.337
	.900	-.414	-.197	-.094	-.056	-.062	-.065	-.078	-.090	-.110	-.096	-.084	-.071	-.063	-.055	-.065	-.128	-.233
	.950	-.358	-.160	-.044	.020	.038	.052	.045	.039	.017	.031	.042	.052	.050	.036	.003	-.091	-.190
Lower surface	.0375	.788	.768	.738	.657	.521	.344	.111	-.098	-.544	-.319	-.018	.236	.413	.570	.694	.754	.791
	.075	.640	.614	.584	.510	.389	.254	.080	-.064	-.329	-.206	-.007	.171	.306	.432	.543	.599	.636
	.150	.486	.463	.437	.370	.273	.166	.045	-.054	-.237	-.143	-.015	.110	.209	.307	.404	.445	.483
	.250	.368	.350	.327	.271	.192	.112	.023	-.053	-.180	-.114	-.022	.067	.145	.222	.299	.337	.366
	.350	.277	.264	.248	.202	.133	.069	-.003	-.058	-.163	-.111	-.037	.032	.094	.157	.222	.253	.275
	.450	.199	.196	.185	.149	.090	.036	-.018	-.064	-.149	-.104	-.044	.006	.058	.109	.165	.188	.200
	.550	.129	.132	.127	.099	.050	.007	-.036	-.075	-.138	-.104	-.059	-.019	.022	.066	.113	.126	.136
	.650	.055	.070	.074	.057	.016	-.018	-.049	-.078	-.124	-.098	-.064	-.037	-.003	.032	.068	.070	.071
	.750	-.014	.015	.029	.026	-.003	-.027	-.054	-.071	-.089	-.080	-.064	-.044	-.016	.007	.030	.021	.010
	.850	-.071	-.018	.015	.026	.012	.005	-.007	-.014	-.022	-.010	-.011	-.002	.011	.015	.028	-.002	-.024
	.925	-.136	-.056	0	.034	.034	.034	.034	.037	.046	.051	.037	.034	.037	.034	.028	-.025	-.068
	.975	-.240	-.116	-.021	.032	.025	.031	.059	.073	.098	.097	.069	.039	.031	.028	.030	-.066	-.130
	1.000	b-.320	b-.153	b-.032	b.031	b.020	b.020	b.073	b.088	a.123	a.120	b.082	b.040	b.027	b.020	b.030	b-.091	b-.176

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Continued

(*l*) N = 1800 rpm; $\beta_{0.75R}$ = 30°.

J	0.882	0.947	1.007	1.067	1.133	1.204	1.284	1.347	1.414	1.453	1.377	1.314	1.240	1.166	1.098	1.048	0.988	0.920
M_x	.601	.612	.623	.634	.640	.647	.656	.667	.681	.686	.672	.664	.652	.643	.636	.627	.616	.608
α_x'	10.84	9.32	7.95	6.61	5.18	3.68	2.04	.79	-.50	-1.23	.21	1.44	2.93	4.47	5.93	7.03	8.38	9.95
$\Delta\beta$	1.27	1.09	.91	.72	.50	.27	0	-.24	-.44	-.58	-.31	-.10	.15	.40	.62	.77	.96	1.17
α_1	3.13	2.99	2.87	2.59	2.08	1.67	1.23	.89	.52	.25	.70	1.05	1.40	1.90	2.30	2.82	2.88	3.03
c_n	1.0325	1.0000	.9681	.8787	.7135	.5734	.4254	.3096	.1827	.0890	.2441	.3633	.4819	.6531	.7838	.9583	.9681	1.0090
c_m	-.0510	-.0238	-.0126	-.0229	-.0343	-.0438	-.0494	-.0573	-.0598	-.0607	-.0542	-.0518	-.0459	-.0373	-.0305	-.0149	-.0084	-.0416
c_c																		

c/b	Pressure coefficient, P																	
	Upper surface																	
0.000	1.093	1.096	1.100	1.104	1.106	1.109	1.112	1.116	1.122	1.124	1.118	1.115	1.111	1.107	1.105	1.102	1.098	1.095
.025	-2.293	-2.151	-2.708	-2.447	-1.936	-1.031	.555	-.226	.074	.230	-.067	-.381	-.769	-1.523	-2.226	-2.568	-2.681	-1.903
.050	-2.102	-2.058	-2.627	-2.317	-1.779	-1.034	-.643	-.378	-.126	.008	-.252	-.506	-.804	-1.132	-2.085	-2.453	-2.549	-1.844
.100	-1.453	-1.783	-2.426	-1.886	-.882	-.777	-.539	-.365	-.185	-.085	-.275	-.453	-.644	-.883	-.950	-2.256	-2.208	-1.633
.200	-1.172	-1.341	-.826	-.782	-.771	-.655	-.510	-.398	-.277	-.207	-.338	-.456	-.579	-.722	-.795	-.783	-1.008	-1.341
.300	-1.036	-1.015	-.755	-.755	-.724	-.638	-.534	-.450	-.354	-.299	-.401	-.494	-.586	-.684	-.749	-.759	-.825	-1.065
.400	-.884	-.782	-.698	-.697	-.670	-.611	-.543	-.486	-.405	-.372	-.449	-.513	-.576	-.642	-.688	-.702	-.694	-.847
.500	-.724	-.595	-.578	-.579	-.563	-.524	-.479	-.441	-.388	-.358	-.412	-.459	-.502	-.546	-.573	-.582	-.551	-.661
.600	-.595	-.466	-.498	-.511	-.509	-.490	-.463	-.444	-.411	-.391	-.426	-.453	-.479	-.502	-.513	-.509	-.452	-.530
.700	-.479	-.357	-.394	-.413	-.422	-.418	-.410	-.407	-.391	-.381	-.395	-.408	-.416	-.422	-.420	-.409	-.343	-.420
.800	-.386	-.269	-.260	-.274	-.286	-.298	-.310	-.323	-.327	-.322	-.318	-.316	-.307	-.296	-.283	-.274	-.224	-.327
.900	-.293	-.179	-.059	-.053	-.051	-.056	-.069	-.083	-.098	-.100	-.086	-.075	-.063	-.053	-.054	-.057	-.089	-.235
.950	-.257	-.144	.020	.033	.042	.055	.057	.048	.030	.031	.046	.054	.056	.052	.037	.027	-.041	-.199
	Lower surface																	
.0375	.801	.773	.718	.651	.534	.390	.181	-.030	-.295	-.508	-.154	.082	.282	.476	.597	.682	.747	.779
.075	.649	.621	.571	.507	.406	.288	.132	-.017	-.193	-.298	-.101	.058	.203	.357	.459	.536	.596	.626
.150	.492	.469	.424	.373	.287	.195	.081	-.026	-.143	-.231	-.082	.028	.132	.247	.331	.395	.447	.473
.250	.372	.355	.319	.276	.206	.133	.045	-.033	-.117	-.180	-.071	.006	.084	.173	.241	.296	.338	.359
.350	.279	.270	.243	.205	.143	.084	.012	-.048	-.117	-.167	-.082	-.018	.041	.117	.174	.222	.257	.270
.450	.206	.201	.182	.151	.098	.046	-.008	-.059	-.115	-.155	-.086	-.032	.012	.075	.124	.165	.193	.198
.550	.135	.137	.128	.103	.055	.013	-.027	-.071	-.115	-.145	-.092	-.049	-.017	.035	.079	.114	.135	.131
.650	.063	.073	.079	.060	.020	-.015	-.050	-.080	-.114	-.136	-.098	-.066	-.039	.002	.037	.069	.081	.066
.750	-.005	.014	.041	.029	-.004	-.032	-.058	-.077	-.097	-.111	-.089	-.069	-.050	-.014	.010	.034	.037	.002
.850	-.049	-.016	.037	.034	.009	0	-.010	-.017	-.025	-.032	-.022	-.015	-.009	.007	.020	.040	.021	-.032
.925	-.103	-.052	.041	.045	.026	.028	.030	.033	.042	.037	.034	.029	.026	.031	.034	.047	.003	-.077
.975	-.208	-.119	.060	.063	.020	.017	.046	.068	.100	.093	.075	.055	.021	.020	.042	.069	-.022	-.160
1.000	[b]-.271	[b]-.166	[b].169	[b].071	[b].019	[b].006	[b].049	[b].082	[a].138	[a].150	[b].100	[b].064	[b].019	[b].008	[b].039	[a].070	[b]-.034	[b]-.210

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Continued

(m) N = 2000 rpm; $\beta_{0.75R}$ = 30°.

J	1.032	1.097	1.140	1.179	1.238	1.289	1.344	1.429	1.387	1.319	1.277	1.218	1.175	1.129	1.081
M_x	.697	.703	.708	.714	.727	.732	.740	.755	.750	.736	.733	.719	.715	.706	.697
$\alpha_x{}'$	7.39	5.95	5.03	4.20	2.97	1.94	.85	-.78	.01	1.34	2.18	3.39	4.28	5.26	6.30
$\Delta\beta$	1.61	1.91	.90	.66	.33	.06	-.22	-.63	-.43	-.10	.12	.43	.69	.97	1.28
α_i	2.97	2.53	2.17	1.90	1.50	1.16	.83	.29	.59	.99	1.27	1.64	1.98	2.31	2.64
c_n	1.0128	.8658	.7454	.6557	.5186	.4055	.2882	.1019	.2062	.3460	.4408	.5683	.6829	.7935	.9041
c_m	-.0281	-.0321	-.0396	-.0412	-.0509	-.0566	-.0620	-.0680	-.0635	-.0588	-.0559	-.0531	-.0388	-.0373	-.0298
c_c		-.0341	-.0228	-.0152	-.0048	.0026	.0091	.0159	.0124	.0053	.0001	-.0092	-.0181	-.0264	

Pressure coefficient, P

	c/b															
Upper surface	0.000	1.128	1.131	1.132	1.134	1.140	1.142	1.145	1.151	1.149	1.143	1.142	1.137	1.135	1.132	1.128
	.025	-1.943	-1.681	-1.384	-1.182	-.676	-.361	-.084	.249	.084	-.225	-.456	-.807	-1.219	-1.522	-1.794
	.050	-1.934	-1.696	-1.477	-1.245	-.858	-.533	-.284	.020	-.132	-.409	-.619	-1.025	-1.321	-1.559	-1.807
	.100	-1.787	-1.548	-1.320	-.943	-.654	-.474	-.303	-.076	-.192	-.390	-.534	-.709	-1.084	-1.413	-1.651
	.200	-1.673	-1.413	-.722	-.736	-.613	-.492	-.377	-.210	-.298	-.433	-.531	-.661	-.755	-.873	-1.536
	.300	-1.380	-.711	-.819	-.759	-.664	-.564	-.466	-.326	-.402	-.516	-.595	-.700	-.778	-.795	-.702
	.400	-.647	-.747	-.751	-.715	-.661	-.594	-.527	-.412	-.474	-.558	-.614	-.681	-.726	-.758	-.702
	.500	-.577	-.624	-.620	-.604	-.579	-.543	-.502	-.419	-.466	-.520	-.556	-.588	-.612	-.623	-.605
	.600	-.519	-.550	-.549	-.543	-.542	-.531	-.519	-.469	-.501	-.521	-.538	-.541	-.549	-.548	-.537
	.700	-.423	-.443	-.441	-.442	-.450	-.461	-.470	-.456	-.469	-.459	-.460	-.448	-.446	-.443	-.438
	.800	-.282	-.289	-.284	-.284	-.305	-.323	-.343	-.352	-.356	-.328	-.319	-.298	-.287	-.287	-.287
	.900	-.041	-.031	-.026	-.028	-.039	-.050	-.067	-.085	-.083	-.055	-.049	-.037	-.031	-.029	-.031
	.950	.075	.075	.073	.071	.074	.074	.067	.056	.057	.073	.074	.070	.070	.073	.078
Lower surface	.0375	.659	.572	.498	.412	.260	.093	-.121	-.556	-.296	.002	.149	.320	.432	.531	.609
	.075	.521	.446	.383	.313	.193	.070	-.080	-.294	-.192	.006	.110	.235	.327	.410	.479
	.150	.390	.326	.275	.219	.128	.037	-.069	-.242	-.147	-.008	.068	.161	.230	.297	.355
	.250	.296	.244	.200	.154	.081	.012	-.067	-.197	-.126	-.021	.034	.107	.162	.219	.266
	.350	.225	.178	.141	.100	.040	-.016	-.084	-.189	-.132	-.043	.001	.061	.107	.156	.200
	.450	.172	.128	.097	.062	.010	-.035	-.094	-.179	-.134	-.059	-.020	.029	.068	.108	.148
	.550	.123	.088	.058	.028	-.018	-.057	-.105	-.171	-.136	-.078	-.047	-.003	.031	.069	.103
	.650	.078	.046	.022	-.005	-.042	-.073	-.109	-.157	-.132	-.087	-.063	-.030	-.002	.033	.063
	.750	.040	.011	-.009	-.029	-.057	-.077	-.100	-.126	-.112	-.087	-.071	-.050	-.028	.001	.028
	.850	.056	.035	.020	.004	-.011	-.019	-.029	-.035	-.031	-.024	-.016	-.007	.003	.026	.049
	.925	.069	.053	.039	.028	.024	.026	.030	.040	.037	.028	.027	.024	.027	.044	.063
	.975	.053	.041	.026	.020	.036	.053	.071	.101	.089	.060	.048	.029	.017	.033	.050
	1.000	b.041	b.028	b.010	b.019	b.041	b.078	b.090	b.127	b.110	b.069	b.057	b.020	b.010	b.026	b.035

b Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Continued

(n) N = 2160 rpm; $\beta_{0.75R}$ = 30°.

J	1.095	1.143	1.196	1.256	1.315	1.373	1.407	1.388	1.311	1.284	1.231	1.180	1.129
M_x	.765	.768	.775	.783	.798	.806	.811	.809	.790	.789	.782	.773	.764
α_x'	6.00	4.96	3.84	2.61	1.42	.28	-.37	0	1.50	2.04	3.12	4.18	5.26
$\Delta\beta$	.90	.64	.39	.10	-.15	-.37	-.49	-.43	-.13	-.02	.21	.46	.72
α_1	2.68	2.18	1.80	1.40	.95	.55	.29	.45	1.00	1.16	1.54	1.94	2.35
c_n	.9145	.7478	.6228	.4835	.3317	.1906	.1026	.1555	.3486	.4008	.5285	.6649	.8051
c_m	-.0700	-.0553	-.0589	-.0636	-.0632	-.0664	-.0662	-.0655	-.0637	-.0660	-.0605	-.0514	-.0521
c_c	-.0260	-.0162	-.0069	.0029	.0099	.0154	.0176	.0163	.0094	.0063	.0014	-.0109	-.0198

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.155	1.157	1.160	1.163	1.169	1.173	1.175	1.175	1.166	1.165	1.162	1.159	1.155
.025	-1.235	-1.006	-.686	-.391	-.106	.130	.255	.181	-.118	-.251	-.508	-.876	-1.068
.050	-1.309	-1.121	-.911	-.628	-.320	-.094	.025	-.046	-.329	-.464	-.821	-.971	-1.208
.100	-1.232	-.986	-.838	-.520	-.327	-.161	-.069	-.123	-.336	-.426	-.579	-.910	-1.099
.200	-1.196	-1.009	-.702	-.529	-.394	-.274	-.204	-.245	-.401	-.462	-.618	-.858	-1.088
.300	-1.185	-.967	-.709	-.619	-.519	-.402	-.336	-.376	-.526	-.577	-.668	-.731	-1.092
.400	-1.181	-.821	-.802	-.665	-.577	-.506	-.448	-.483	-.586	-.622	-.729	-.832	-.863
.500	-.794	-.796	-.738	-.630	-.553	-.492	-.453	-.475	-.560	-.587	-.694	-.734	-.794
.600	-.679	-.713	-.749	-.692	-.628	-.572	-.540	-.559	-.630	-.658	-.714	-.725	-.693
.700	-.465	-.483	-.528	-.630	-.653	-.654	-.641	-.645	-.654	-.637	-.588	-.503	-.477
.800	-.280	-.272	-.289	-.309	-.329	-.358	-.399	-.373	-.338	-.322	-.307	-.286	-.279
.900	-.023	-.029	-.027	-.029	-.034	-.049	-.060	-.051	-.036	-.030	-.036	-.030	-.029
.950	.072	.048	.055	.068	.074	.074	.065	.072	.077	.075	.054	.053	.057
Lower surface													
.0375	.543	.430	.329	.178	-.049	-.310	-.593	-.393	-.043	.072	.236	.369	.476
.075	.428	.332	.252	.139	-.029	-.195	-.253	-.240	-.025	.058	.179	.281	.367
.150	.318	.237	.173	.090	-.034	-.154	-.251	-.189	-.033	.028	.116	.195	.267
.250	.238	.168	.117	.053	-.045	-.142	-.213	-.168	-.044	.003	.071	.135	.194
.350	.173	.111	.065	.012	-.074	-.156	-.217	-.178	-.073	-.030	.024	.080	.132
.450	.123	.066	.024	-.018	-.094	-.165	-.217	-.184	-.092	-.053	-.010	.038	.084
.550	.075	.022	-.017	-.051	-.116	-.178	-.226	-.196	-.116	-.080	-.047	-.004	.040
.650	.030	-.017	-.050	-.078	-.131	-.183	-.225	-.197	-.129	-.100	-.077	-.040	-.002
.750	-.003	-.048	-.076	-.093	-.129	-.161	-.193	-.172	-.127	-.108	-.098	-.065	-.034
.850	.022	-.017	-.036	-.040	-.058	-.069	-.086	-.074	-.052	-.044	-.050	-.030	-.007
.925	.042	.003	-.006	0	0	.007	.001	.005	.006	.003	-.014	-.002	.013
.975	.031	-.011	-.007	.012	.036	.063	.067	.066	.041	.025	-.006	-.009	0
1.000	b.028	b-.020	b-.012	b.017	b.055	b.090	b.100	b.098	b.060	b.036	b0	b-.015	b-.003

b Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(o) N = 1350 rpm; $\beta_{0.75R}$ = 50°.

J	2.277	2.388	2.488	2.634	2.783	2.930	3.065	3.009	2.869	2.726	2.579	2.472	2.367
M_x	.634	.651	.667	.693	.717	.747	.770	.758	.731	.705	.678	.661	.644
α_x'	6.08	4.73	3.58	1.98	.47	-.93	-2.12	-1.64	-.36	1.04	2.57	3.76	4.98
$\Delta\beta$	.42	.36	.21	0	-.23	-.44	-.65	-.55	-.35	-.13	.08	.24	.40
α_1	2.25	1.86	1.60	1.17	.80	.48	.08	.26	.62	.94	1.32	1.62	1.91
c_n	.8567	.7084	.6088	.4472	.3071	.1826	.0303	.1019	.2386	.3614	.5049	.6198	.7286
c_m	-.0224	-.0365	-.0423	-.0503	-.0593	-.0700	-.0832	-.0780	-.0652	-.0561	-.0465	-.0368	-.0331
c_c													

	c/b	Pressure coefficient, P												
Upper surface	0.000	1.104	1.110	1.116	1.127	1.136	1.148	1.158	1.152	1.141	1.131	1.120	1.114	1.108
	.025	-2.279	-1.788	-1.140	-.548	-.130	.169	.391	.302	.040	-.288	-.744	-1.245	-1.954
	.050	-2.167	-1.633	-1.192	-.669	-.319	-.055	.154	.067	-.173	-.456	-.814	-1.223	-1.815
	.100	-1.766	-.827	-.803	-.561	-.329	-.138	.027	-.044	-.223	-.419	-.647	-.833	-.844
	.200	-.769	-.749	-.668	-.528	-.383	-.257	-.134	-.190	-.317	-.443	-.577	-.689	-.761
	.300	-.749	-.712	-.653	-.559	-.456	-.364	-.266	-.313	-.408	-.501	-.593	-.664	-.719
	.400	-.683	-.657	-.615	-.559	-.494	-.434	-.363	-.399	-.464	-.524	-.578	-.626	-.659
	.500	-.567	-.553	-.526	-.496	-.453	-.418	-.374	-.399	-.437	-.472	-.502	-.533	-.555
	.600	-.497	-.495	-.482	-.475	-.456	-.447	-.430	-.442	-.452	-.466	-.473	-.487	-.495
	.700	-.398	-.407	-.406	-.413	-.417	-.426	-.434	-.436	-.425	-.416	-.407	-.410	-.405
	.800	-.256	-.271	-.279	-.302	-.318	-.342	-.361	-.362	-.336	-.312	-.291	-.281	-.268
	.900	-.038	-.033	-.033	-.047	-.058	-.074	-.086	-.090	-.074	-.057	-.048	-.038	-.038
	.950	.040	.059	.074	.073	.077	.068	.063	.059	.066	.074	.077	.066	.049
Lower surface	.0375	.631	.532	.420	.199	-.062	-.375	-1.037	-.723	-.224	.046	.294	.441	.561
	.075	.494	.405	.316	.151	-.031	-.221	-.529	-.313	-.137	.040	.220	.333	.429
	.150	.361	.291	.223	.101	-.025	-.156	-.278	-.242	-.098	.023	.151	.232	.310
	.250	.266	.213	.160	.064	-.025	-.119	-.218	-.181	-.075	.008	.104	.166	.227
	.350	.197	.152	.107	.030	-.041	-.118	-.193	-.165	-.084	-.016	.060	.112	.163
	.450	.145	.105	.071	.007	-.048	-.111	-.168	-.148	-.085	-.029	.030	.074	.116
	.550	.096	.064	.033	-.016	-.062	-.110	-.153	-.139	-.091	-.045	.001	.035	.071
	.650	.054	.027	.003	-.035	-.068	-.101	-.129	-.121	-.089	-.058	-.020	.005	.034
	.750	.023	.005	-.011	-.045	-.062	-.080	-.089	-.090	-.075	-.060	-.031	-.011	.011
	.850	.028	.021	.014	.002	0	.001	.006	.001	-.002	-.002	.007	.013	.023
	.925	.037	.040	.040	.042	.054	.068	.084	.075	.060	.042	.042	.038	.039
	.975	.044	.027	.030	.054	.085	.116	.137	.126	.103	.068	.042	.027	.039
	1.000	[b].055	[b].013	[b]-.014	[b].050	[b].097	[b].118	[b].160	[a].161	[b].132	[b].121	[b]-.010	[b].008	[b].040

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Continued

(p) N = 1350 rpm; $\beta_{0.75R}$ = 40°.

J	1.408	1.508	1.613	1.721	1.848	1.992	2.140	2.074	1.919	1.782	1.671	1.564	1.471
M_x	.513	.524	.536	.553	.567	.590	.612	.601	.576	.558	.544	.533	.521
$\alpha_x{}'$	9.61	7.75	5.89	4.08	2.06	-.09	-2.14	-1.25	.98	3.09	4.91	6.75	8.43
$\Delta\beta$	.61	.51	.39	.26	.09	-.13	-.38	-.27	-.02	.18	.32	.45	.55
α_i	2.66	2.37	1.99	1.58	1.11	.61	.12	.36	.85	1.35	1.79	2.23	2.51
c_n	.9525	.8562	.7239	.5759	.4078	.2260	.0461	.1352	.3164	.4998	.6563	.8117	.9070
c_m	-.0293	-.0147	-.0290	-.0385	-.0446	-.0543	-.0560	-.0588	-.0493	-.0407	-.0401	-.0261	-.0173
c_c													

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.067	1.070	1.074	1.079	1.083	1.090	1.096	1.093	1.085	1.080	1.076	1.073	1.070
.025	-1.560	-2.076	-1.941	-1.060	-.570	-.064	.316	.143	-.298	-.840	-1.253	-2.234	-1.782
.050	-1.536	-1.948	-1.365	-1.001	-.622	-.233	.090	-.060	-.419	-.828	-1.141	-1.956	-1.705
.100	-1.538	-1.641	-.957	-.760	-.514	-.248	-.017	-.128	-.378	-.641	-.872	-1.235	-1.593
.200	-1.370	-.993	-.750	-.622	-.472	-.301	-.141	-.221	-.384	-.553	-.694	-.776	-1.288
.300	-1.076	-.725	-.682	-.597	-.488	-.363	-.239	-.299	-.423	-.548	-.647	-.701	-.932
.400	-.802	-.613	-.617	-.562	-.486	-.397	-.303	-.350	-.443	-.528	-.595	-.630	-.676
.500	-.586	-.515	-.520	-.482	-.432	-.367	-.298	-.332	-.401	-.461	-.505	-.531	-.511
.600	-.449	-.441	-.463	-.446	-.414	-.374	-.324	-.350	-.395	-.431	-.459	-.464	-.409
.700	-.335	-.352	-.385	-.386	-.374	-.359	-.330	-.347	-.368	-.382	-.391	-.379	-.316
.800	-.240	-.240	-.264	-.280	-.294	-.301	-.298	-.303	-.298	-.287	-.279	-.262	-.222
.900	-.143	-.079	-.055	-.059	-.076	-.094	-.106	-.104	-.085	-.069	-.065	-.047	-.107
.950	-.103	-.011	.040	.055	.047	.036	.022	.026	.042	.051	.037	.013	-.057
Lower surface													
.0375	.766	.698	.608	.448	.204	-.150	-.541	-.352	.033	.340	.538	.659	.732
.075	.613	.548	.463	.333	.149	-.098	-.355	-.223	.027	.249	.406	.508	.578
.150	.461	.403	.332	.231	.096	-.073	-.246	-.157	.009	.168	.286	.372	.431
.250	.347	.299	.243	.163	.059	-.058	-.182	-.120	-.004	.116	.204	.273	.325
.350	.267	.223	.175	.111	.028	-.066	-.163	-.117	-.024	.071	.144	.202	.245
.450	.200	.167	.129	.073	.004	-.069	-.145	-.106	-.031	.040	.101	.148	.182
.550	.137	.111	.083	.037	-.020	-.075	-.134	-.104	-.047	.009	.060	.099	.124
.650	.077	.064	.044	.008	-.036	-.077	-.118	-.096	-.058	-.015	.028	.077	.071
.750	.025	.026	.015	-.008	-.041	-.071	-.093	-.082	-.060	-.024	.004	.024	.027
.850	-.003	.018	.022	.014	.002	-.009	-.013	-.009	-.006	.005	.019	.030	.012
.925	-.034	.012	.028	.037	.040	.043	.054	.052	.036	.037	.041	.034	-.004
.975	-.080	-.002	.017	.025	.045	.083	.108	.099	.063	.035	.039	.052	-.032
1.000	b-.130	b-.009	b.008	b.017	b.038	a.051	a.136	a.125	b.124	b.032	b.040	b.068	b-.049

aFaired value.

bLower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 6.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) — Continued

(q) N = 1350 rpm; $\beta_{0.75R} = 35°$.

J	1.078	1.174	1.264	1.387	1.507	1.652	1.823	1.730	1.571	1.456	1.319	1.230	1.137
M_x	.474	.486	.495	.509	.527	.546	.566	.553	.534	.516	.501	.491	.480
$\alpha_x{}'$	11.37	9.30	7.44	5.01	2.77	.23	-2.56	-1.07	1.63	3.71	6.34	8.13	10.09
$\Delta\beta$	.68	.63	.54	.39	.22	-.01	-.28	-.13	.12	.30	.48	.58	.66
α_i	2.96	2.62	2.29	1.76	1.24	.68	-.01	.34	.98	1.45	2.04	2.45	2.71
c_n	1.0215	.9123	.8035	.6241	.4408	.2465	-.0032	.1251	.3512	.5162	.7164	.8573	.9390
c_m	-.0676	-.0186	-.0242	-.0444	-.0362	-.0512	-.0576	-.0540	-.0464	-.0399	-.0347	-.0161	-.0503
c_c													

c/b	Pressure coefficient, P												
0.000	1.058	1.061	1.063	1.066	1.071	1.077	1.082	1.078	1.073	1.068	1.064	1.062	1.059
.025	-1.383	-1.645	-2.192	-1.182	-.686	-.139	.378	.138	-.464	-.879	-1.967	-2.096	-1.442
.050	-1.385	-1.645	-1.989	-1.086	-.698	-.283	.150	-.061	-.547	-.852	-1.350	-1.916	-1.442
.100	-1.351	-1.616	-1.284	-.820	-.556	-.282	.034	-.123	-.473	-.650	-.931	-1.610	-1.387
.200	-1.260	-1.323	-.774	-.659	-.497	-.319	-.099	-.212	-.457	-.546	-.738	-.984	-1.238
.300	-1.139	-.952	-.687	-.614	-.499	-.368	-.195	-.285	-.481	-.531	-.670	-.712	-1.080
.400	-.978	-.687	-.617	-.571	-.494	-.395	-.261	-.335	-.490	-.508	-.609	-.596	-.887
.500	-.786	-.509	-.521	-.491	-.435	-.362	-.261	-.318	-.446	-.441	-.518	-.500	-.688
.600	-.619	-.402	-.456	-.450	-.413	-.366	-.289	-.335	-.436	-.414	-.462	-.424	-.528
.700	-.470	-.308	-.370	-.387	-.372	-.349	-.299	-.333	-.403	-.360	-.387	-.338	-.397
.800	-.352	-.216	-.258	-.285	-.290	-.294	-.275	-.277	-.335	-.274	-.274	-.232	-.289
.900	-.238	-.111	-.074	-.071	-.080	-.095	-.099	-.108	-.129	-.056	-.072	-.080	-.193
.950	-.190	-.067	.005	.033	.039	.029	.018	.016	-.005	.058	.019	-.016	-.150
.0375	.796	.749	.669	.504	.259	-.093	-.594	-.350	.069	.391	.603	.709	.757
.075	.647	.597	.513	.376	.189	-.061	-.397	-.226	.039	.289	.459	.558	.606
.150	.490	.445	.372	.260	.121	-.051	-.273	-.158	.004	.199	.324	.410	.456
.250	.373	.334	.275	.165	.076	-.044	-.201	-.125	-.020	.144	.234	.307	.341
.350	.282	.255	.203	.127	.045	-.052	-.173	-.119	-.040	.094	.171	.231	.257
.450	.210	.190	.149	.090	.019	-.061	-.155	-.108	-.058	.060	.122	.170	.190
.550	.144	.131	.100	.047	-.005	-.069	-.137	-.108	-.076	.032	.078	.120	.127
.650	.077	.075	.057	.016	-.025	-.072	-.121	-.100	-.092	.004	.039	.069	.066
.750	.016	.028	.025	-.003	-.039	-.069	-.093	-.083	-.096	-.005	.014	.031	.015
.850	-.019	.010	.028	.016	.001	-.010	-.014	-.013	-.047	.022	.024	.027	-.019
.925	-.056	-.010	.030	.035	.030	.039	.052	.047	-.005	.050	.036	.019	-.049
.975	b-.121	b-.042	.037	b.033	b.047	.075	.108	.089	.019	.049	b.048	.013	b-.095
1.000	b-.188	b-.073	a.039	b.038	b.054	a.090	a.087	a.118	b.030	b.050	b.049	b.010	b-.121

(rows .000–.950 are Upper surface; rows .0375–1.000 are Lower surface)

a Faired value.
b Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Continued

(r) $N = 1350$ rpm; $\beta_{0.75R} = 25°$.

	0.588	0.674	0.750	0.839	0.922	1.015	1.098	1.180	1.219	1.137	1.064	0.965	0.870	0.782	0.697	0.613
J	0.588	0.674	0.750	0.839	0.922	1.015	1.098	1.180	1.219	1.137	1.064	0.965	0.870	0.782	0.697	0.613
M_x	.409	.430	.428	.435	.455	.463	.475	.484	.488	.472	.467	.449	.438	.427	.417	.418
$\alpha_x{}'$	13.14	10.93	9.03	6.86	4.90	2.77	.93	-.82	-1.63	.09	1.68	3.91	6.12	8.25	10.35	12.49
$\Delta\beta$	.57	.50	.44	.35	.26	.15	.06	-.03	-.08	.02	.10	.21	.31	.41	.48	.55
α_l	3.10	3.01	2.64	2.28	1.68	1.19	.79	.36	.14	.56	.92	1.43	1.95	2.49	2.83	3.07
c_n	.8917	.9084	.8207	.7289	.5480	.3968	.2656	.1212	.0491	.1882	.3092	.4719	.6271	.7842	.8611	.8962
c_m	-.0437	-.0744	-.0134	-.0296	-.0389	-.0414	-.0460	-.0521	-.0480	-.0504	-.0440	-.0418	-.0381	-.0203	-.0139	-.0457
c_c																
c/b							Pressure coefficient, P									
Upper surface																
0.000	1.043	1.048	1.047	1.049	1.053	1.055	1.058	1.060	1.061	1.057	1.056	1.052	1.049	1.047	1.045	1.045
.025	-1.908	-1.251	-1.749	-2.117	-1.036	-.588	-.224	.112	.267	-.046	-.339	-.823	-1.303	-2.054	-1.766	-1.880
.050	-1.804	-1.190	-1.718	-1.676	-.954	-.607	-.345	-.075	.058	-.036	-.430	-.795	-1.108	-1.816	-1.742	-1.702
.100	-1.312	-1.085	-1.659	-.941	-.728	-.500	-.316	-.130	-.036	-.223	-.377	-.616	-.850	-1.429	-1.660	-1.357
.200	-.915	-1.027	-1.098	-.724	-.592	-.450	-.329	-.210	-.140	-.277	-.368	-.523	-.673	-.830	-1.235	-.993
.300	-.749	-.965	-.708	-.661	-.563	-.455	-.367	-.276	-.221	-.324	-.395	-.509	-.618	-.652	-.807	-.838
.400	-.648	-.867	-.561	-.605	-.535	-.452	-.388	-.323	-.278	-.361	-.411	-.492	-.572	-.583	-.596	-.716
.500	-.557	-.748	-.465	-.512	-.464	-.400	-.386	-.351	-.302	-.340	-.365	-.408	-.444	-.488	-.471	-.596
.600	-.497	-.624	-.393	-.458	-.432	-.386	-.350	-.331	-.315	-.292	-.339	-.363	-.408	-.444	-.392	-.512
.700	-.439	-.499	-.312	-.381	-.375	-.350	-.331	-.315	-.292	-.332	-.339	-.363	-.380	-.354	-.315	-.431
.800	-.398	-.392	-.216	-.279	-.293	-.286	-.281	-.287	-.276	-.298	-.285	-.284	-.281	-.249	-.242	-.369
.900	-.350	-.290	-.094	-.082	-.085	-.088	-.091	-.109	-.107	-.113	-.091	-.082	-.081	-.081	-.135	-.307
.950	-.329	-.244	-.043	.007	.026	.032	.027	.008	.007	.009	.027	.036	.021	-.017		-.276
Lower surface																
.0375	.806	.736	.708	.617	.428	.211	-.015	-.321	-.489	-.181	.059	.342	.543	.664	.738	.781
.075	.646	.585	.555	.468	.311	.151	-.010	-.213	-.314	-.123	.040	.244	.404	.513	.580	.623
.150	.486	.442	.408	.331	.208	.093	-.015	-.153	-.221	-.099	.016	.160	.278	.370	.433	.465
.250	.364	.330	.303	.244	.140	.054	-.023	-.117	-.168	-.086	0	.107	.197	.268	.320	.346
.350	.270	.248	.225	.172	.092	.023	-.034	-.114	-.150	-.086	-.021	.073	.136	.197	.238	.259
.450	.192	.180	.168	.124	.052	-.002	-.039	-.109	-.140	-.086	-.031	.033	.092	.147	.181	.185
.550	.116	.116	.114	.076	.021	-.021	-.054	-.106	-.127	-.089	-.046	.005	.055	.096	.118	.116
.650	.044	.054	.065	.041	-.005	-.023	-.038	-.046	-.059	-.085	-.094	-.080	-.057	-.032	0	.048
.750	-.028	-.004	.024	.012	.014	-.023	-.046	-.059	-.085	-.017	-.005	-.032	0	.018	-.013	-.018
.850	-.084	-.041	.012	.020	.001	-.007	-.007	-.018	-.023	-.017	-.005	.002	.015	.018	.018	-.064
.925	-.150	-.084	0	.041	.026	.032	.038	.040	.038	.033	.032	.031	.032	.018	-.043	-.120
.975	-.239	-.158	-.012	.041	.018	.041	.071	.084	.088	.075	.054	.031	.021	[a]-.029	[b]-.092	[b]-.192
1.000	[b]-.338	[b]-.224	[b]-.026	[b].030	[b]-.014	[b].035	[b].098	[a].175	[a].128	[a].106	[b].059	[b].021	[b]-.001	[b]-.070	[b]-.128	[b]-.246

[a] Faired value.

[b] Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 6.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-307.00 PROPELLER BLADE SECTION (x = 0.65) - Concluded

(s) N = 1350 rpm; $\beta_{0.75R} = 20°$.

J	0.553	0.619	0.656	0.715	0.769	0.839	0.905	0.988	0.964	0.877	0.829	0.748	0.692	0.656	0.593	0.493
M_x	.406	.419	.425	.432	.425	.441	.443	.457	.454	.440	.445	.434	.426	.425	.410	.382
$\alpha_x{}'$	9.05	7.34	6.39	4.90	3.56	1.86	.30	-1.62	-1.07	.96	2.10	4.08	5.48	6.39	8.01	10.63
$\Delta\beta$	.56	.46	.43	.35	.28	.18	.09	-.03	0	.13	.19	.30	.38	.43	.51	.64
α_i	2.88	2.56	2.23	1.81	1.36	.98	.60	.20	.35	.74	1.12	1.54	1.95	2.31	2.72	3.13
c_n	.7923	.7310	.6452	.5379	.4130	.3075	.1914	.0652	.1142	.2344	.3483	.4648	.5754	.6726	.7653	.8212
c_m	-.0166	-.0251	-.0381	-.0387	-.0424	-.0511	-.0527	-.0547	-.0551	-.0496	-.0437	-.0409	-.0420	-.0349	-.0202	-.0419
c_c																

	c/b	Pressure coefficient, P															
Upper surface	0.000	1.042	1.045	1.046	1.048	1.046	1.050	1.050	1.054	1.053	1.050	1.051	1.048	1.047	1.046	1.043	1.037
	.025	-2.377	-1.934	-1.586	-1.066	-.692	-.362	-.063	.212	.124	-.173	-.506	-.836	-1.166	-1.904	-2.113	-2.015
	.050	-1.808	-1.813	-1.122	-.965	-.684	-.446	-.216	.013	-.060	-.297	-.542	-.804	-1.041	-1.278	-1.820	-1.595
	.100	-1.397	-1.229	-.859	-.727	-.543	-.385	-.228	-.065	-.116	-.285	-.451	-.619	-.784	-.849	-1.341	-1.414
	.200	-.860	-.684	-.682	-.594	-.478	-.376	-.277	-.159	-.197	-.309	-.416	-.524	-.626	-.684	-.769	-1.033
	.300	-.661	-.620	-.620	-.561	-.478	-.396	-.325	-.228	-.261	-.346	-.431	-.511	-.581	-.623	-.635	-.762
	.400	-.573	-.573	-.575	-.535	-.478	-.426	-.353	-.269	-.297	-.381	-.437	-.494	-.548	-.574	-.570	-.600
	.500	-.479	-.483	-.486	-.458	-.413	-.376	-.333	-.275	-.294	-.346	-.384	-.431	-.469	-.481	-.483	-.470
	.600	-.407	-.427	-.443	-.426	-.398	-.371	-.344	-.302	-.316	-.348	-.376	-.407	-.429	-.433	-.421	-.387
	.700	-.328	-.353	-.376	-.373	-.360	-.348	-.336	-.308	-.316	-.334	-.343	-.362	-.371	-.365	-.343	-.308
	.800	-.228	-.255	-.275	-.290	-.292	-.295	-.296	-.277	-.283	-.295	-.285	-.285	-.278	-.267	-.240	-.234
	.900	-.083	-.078	-.080	-.081	-.093	-.104	-.115	-.131	-.116	-.104	-.090	-.082	-.076	-.070	-.081	-.152
	.950	-.020	.005	.015	.028	.026	.015	-.001	-.004	-.002	.013	.030	.032	.028	.024	-.010	-.121
Lower surface	.0375	.696	.631	.565	.445	.257	.070	-.165	-.421	-.327	-.070	.166	.345	.504	.595	.662	.742
	.075	.536	.482	.422	.324	.179	.047	-.115	-.266	-.219	-.050	.117	.246	.369	.447	.510	.585
	.150	.388	.346	.294	.215	.111	.018	-.092	-.197	-.155	-.048	.064	.160	.252	.319	.364	.426
	.250	.288	.247	.205	.145	.064	-.002	-.086	-.153	-.121	-.048	.036	.104	.179	.230	.269	.316
	.350	.213	.185	.150	.094	.026	-.022	-.080	-.139	-.116	-.056	.006	.061	.125	.166	.198	.236
	.450	.156	.135	.101	.058	.002	-.035	-.086	-.125	-.110	-.062	-.011	.032	.083	.120	.146	.172
	.550	.105	.086	.062	.022	-.022	-.046	-.086	-.120	-.107	-.070	-.035	.002	.046	.077	.098	.108
	.650	.058	.046	.024	-.002	-.040	-.055	-.086	-.109	-.099	-.073	-.043	-.022	.016	.040	.052	.055
	.750	.024	.018	.003	-.021	-.052	-.057	-.080	-.087	-.082	-.070	-.052	-.034	-.008	.015	.024	.003
	.850	.018	.024	.015	.003	-.010	-.011	-.018	-.015	-.016	-.012	-.005	-.001	.016	.031	.024	-.018
	.925	.011	.037	.034	.028	.021	.036	.039	.051	.046	.036	.033	.029	.034	.046	.027	-.044
	.975	.011	.024	.015	.016	.026	.064	.084	.112	.104	.073	.047	.026	.019	.031	.015	-.082
	1.000	b.010	b.012	b-.015	b-.010	b.024	a.071	a.113	a.150	a.150	a.096	b.047	b.004	b-.003	b-.011	b-.002	b-.101

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-306.62 PROPELLER BLADE SECTION (x = 0.70)

(a) N = 1140 rpm; $\beta_{0.75R} = 45°$.

J	1.677	1.837	1.949	2.071	2.191	2.309	2.443	2.585	2.521	2.401	2.255	2.120	2.012	1.890	1.765
M_x	.472	.491	.502	.518	.531	.543	.561	.579	.568	.553	.534	.520	.510	.493	.479
α_x'	9.67	7.13	5.45	3.72	2.11	.60	-1.01	-2.61	-1.90	-.51	1.28	3.05	4.54	6.32	8.25
$\Delta\beta$	.62	.50	.41	.31	.23	.12	.01	-.10	-.05	.04	.17	.27	.36	.46	.55
α_1	2.57	2.22	1.90	1.49	1.09	.76	.45	.07	.21	.54	.92	1.34	1.67	2.09	2.40
c_n	.9079	.7898	.6805	.5342	.3916	.2748	.1652	.0258	.0781	.1968	.3342	.4839	.6013	.7457	.8504
c_m	-.0288	-.0286	-.0444	-.0498	-.0488	-.0592	-.0615	-.0646	-.0636	-.0603	-.0515	-.0470	-.0497	-.0342	-.0183
c_c															

Pressure coefficient, P

Upper surface

c/b															
0.000	1.057	1.062	1.064	1.068	1.072	1.075	1.081	1.086	1.083	1.078	1.073	1.069	1.067	1.062	1.059
.025	-1.947	-1.689	-1.866	-.907	-.547	-.200	.094	.378	.263	0	-.364	-.774	-1.220	-1.863	-1.796
.050	-1.917	-1.682	-1.387	-.842	-.574	-.315	-.080	.162	.061	-.157	-.440	-.742	-.960	-1.740	-1.718
.100	-1.740	-1.569	-.834	-.671	-.494	-.324	-.160	.021	-.058	-.215	-.405	-.605	-.767	-1.278	-1.079
.200	-1.098	-.895	-.683	-.579	-.477	-.362	-.251	-.127	-.184	-.289	-.410	-.541	-.574	-.612	-.740
.300	-.853	-.628	-.609	-.524	-.450	-.369	-.284	-.226	-.261	-.323	-.384	-.456	-.509	-.548	-.573
.400	-.683	-.530	-.536	-.475	-.419	-.362	-.300	-.262	-.293	-.337	-.381	-.435	-.471	-.497	-.473
.500	-.551	-.470	-.470	-.445	-.408	-.362	-.318	-.301	-.327	-.358	-.386	-.422	-.443	-.448	-.395
.600	-.440	-.419	-.448	-.422	-.401	-.379	-.362	-.343	-.301	-.332	-.358	-.366	-.393	-.384	-.319
.700	-.348	-.347	-.390	-.381	-.372	-.362	-.341	-.314	-.290	-.287	-.300	-.288	-.286	-.270	-.221
.800	-.262	-.240	-.277	-.281	-.284	-.307	-.290	-.272	-.154	-.141	-.105	-.093	-.089	-.096	-.104
.900	-.182	-.090	-.089	-.083	-.085	-.103	-.103	-.001	.002	-.008	-.006	.027	.025	.008	-.007
.950	-.152	-.019	.006	.024	.028	.006	-.001	.002	-.008	-.006	.027	.025	.008	-.007	-.054

Lower surface

c/b															
.0375	.741	.646	.552	.393	.188	-.039	-.278	-.600	-.479	-.200	.081	.312	.468	.597	.697
.075	.593	.511	.424	.301	.148	-.013	-.170	-.374	-.289	-.120	.072	.238	.361	.469	.556
.150	.444	.376	.307	.211	.099	-.009	-.111	-.245	-.194	-.082	.048	.167	.256	.340	.413
.250	.334	.279	.227	.170	.109	.042	-.026	-.078	-.150	-.129	-.066	.009	.080	.134	.236
.350	.255	.213	.170	.118	.072	.011	-.039	-.080	-.137	-.121	-.070	-.013	.046	.092	.172
.450	.186	.157	.118	.072	.011	-.039	-.054	-.089	-.137	-.119	-.082	-.030	-.013	.046	.119
.550	.120	.109	.080	.040	-.012	-.025	-.054	-.072	-.100	-.095	-.068	-.037	0	.016	.076
.650	.072	.070	.051	.021	-.025	-.054	-.054	-.066	-.100	-.095	-.068	-.049	-.030	.025	.042
.750	.030	.048	.035	.014	-.020	-.039	-.050	-.066	-.066	-.049	-.030	0	0	.037	.023
.850	-.008	.040	.044	.030	.002	-.005	.001	-.004	-.008	-.002	0	.016	.037	.056	.018
.925	-.036	.045	.065	.054	.028	.049	.060	.066	.066	.059	.056	.038	.039	.043	-.008
.975	-.095	.045	.089	.067	.059	.110	.133	.141	.132	.127	.086	.057	.072	.068	-.011
1.000	a-.130	a.052	a.099	a.074	b.062	a.152	a.182	a.206	a.192	a.177	a.123	b.069	a.082	a.072	a-.011

a Faired value.
b Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

J	1.762	1.872	1.967	2.079	2.191	2.298	2.404	2.529	2.571	2.494	2.368	2.262	2.163	2.030	1.923	1.841
M_x	.568	.582	.590	.608	.625	.641	.657	.675	.682	.669	.648	.635	.618	.601	.586	.576
α_x'	8.30	6.60	5.19	3.61	2.11	.74	-.54	-1.98	-2.47	-1.59	-.11	1.19	2.48	4.28	5.84	7.08
$\Delta\beta$	.83	.75	.60	.43	.32	.19	.05	-.10	-.13	-.07	.09	.24	.35	.49	.67	.78
α_i	2.53	2.24	1.90	1.52	1.18	.89	.58	.20	.07	.28	.67	.99	1.26	1.66	2.07	2.34
c_n	.9021	.7999	.6791	.5477	.4281	.3245	.2097	.0713	.0261	.1016	.2419	.3581	.4529	.5974	.7386	.8336
c_m	-.0148	-.0257	-.0356	-.0475	-.0505	-.0653	-.0703	-.0705	-.0719	-.0685	-.0674	-.0609	-.0489	-.0431	-.0307	-.0216
c_c																

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.183	1.087	1.090	1.095	1.101	1.107	1.112	1.120	1.122	1.117	1.109	1.105	1.099	1.093	1.088	1.085
.025	-1.991	-2.107	-1.883	-.932	-.573	-.231	.053	.323	.405	.264	-.023	-.336	-.649	-1.061	-2.475	-2.036
.050	-1.918	-1.895	-1.087	-.922	-.623	-.361	-.128	.107	.179	.053	-.192	-.440	-.680	-1.013	-1.268	-1.912
.100	-1.682	-1.475	-.906	-.732	-.534	-.364	-.202	-.029	.030	-.068	-.248	-.415	-.570	-.805	-.964	-1.630
.200	-1.174	-.825	-.748	-.632	-.522	-.403	-.298	-.180	-.138	-.207	-.329	-.434	-.542	-.681	-.776	-.943
.300	-.863	-.666	-.655	-.570	-.492	-.411	-.334	-.242	-.208	-.262	-.355	-.430	-.504	-.602	-.673	-.697
.400	-.644	-.575	-.570	-.512	-.458	-.404	-.348	-.279	-.254	-.295	-.364	-.415	-.467	-.535	-.585	-.572
.500	-.505	-.509	-.517	-.478	-.446	-.406	-.366	-.317	-.298	-.328	-.378	-.414	-.452	-.495	-.524	-.495
.600	-.402	-.447	-.473	-.453	-.439	-.418	-.391	-.359	-.347	-.365	-.399	-.419	-.439	-.462	-.471	-.428
.700	-.314	-.364	-.397	-.396	-.399	-.398	-.393	-.378	-.371	-.382	-.388	-.395	-.399	-.400	-.390	-.382
.800	-.215	-.240	-.265	-.278	-.296	-.331	-.330	-.323	-.322	-.326	-.329	-.309	-.293	-.275	-.256	-.223
.900	-.108	-.070	-.056	-.058	-.075	-.108	-.115	-.123	-.126	-.120	-.106	-.094	-.070	-.058	-.058	-.073
.950	-.064	.007	.033	.049	.046	.014	.013	.010	.007	.011	.007	.034	.047	.042	.023	-.010
Lower surface																
.0375	.720	.648	.550	.401	.199	-.008	-.236	-.569	-.634	-.481	-.170	.069	.244	.462	.598	.674
.075	.582	.514	.429	.310	.158	.010	-.143	-.330	-.409	-.284	-.099	.068	.192	.358	.471	.539
.150	.437	.383	.311	.222	.111	.009	-.090	-.217	-.267	-.187	-.065	.047	.133	.258	.344	.403
.250	.327	.287	.229	.160	.073	-.001	-.070	-.165	-.196	-.142	-.052	.031	.091	.185	.254	.304
.350	.253	.222	.170	.115	.046	-.011	-.069	-.140	-.165	-.126	-.055	.010	.059	.137	.191	.235
.450	.186	.162	.119	.074	.014	-.031	-.077	-.137	-.151	-.122	-.065	-.011	.026	.092	.138	.173
.550	.128	.113	.076	.040	-.017	-.051	-.083	-.127	-.139	-.120	-.077	-.030	-.002	.055	.092	.123
.650	.077	.075	.047	.019	-.022	-.048	-.072	-.103	-.110	-.097	-.065	-.035	-.016	.028	.056	.081
.750	.041	.050	.027	.010	-.020	-.031	-.046	-.064	-.068	-.064	-.042	-.023	-.014	.017	.034	.052
.850	.017	.045	.031	.022	.002	.009	.007	.001	.001	-.001	.007	.009	.007	.020	.026	.033
.925	-.005	.043	.038	.042	.032	.064	.068	.072	.074	.069	.070	.061	.038	.030	.023	.019
.975	-.048	.026	.031	.054	.064	.132	.138	.144	.147	.141	.142	.110	.061	.037	.015	-.002
1.000	[b]-.088	[b]-.006	[b].030	[b].058	[b].078	[a].170	[a].184	[b].162	[b].204	[b].183	[b].202	[a].148	[b].072	[b].043	[b].002	[b]-.030

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL
TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN
NACA 16-306.62 PROPELLER BLADE SECTION (x = 0.70) - Continued

(c) N = 1500 rpm; $\beta_{0.75R} = 45°$.

J	1.921	2.012	2.129	2.229	2.353	2.453	2.554	2.510	2.400	2.282	2.184	2.073	1.993
M_x	.653	.667	.687	.701	.723	.741	.756	.749	.728	.707	.691	.675	.661
α_x'	5.86	4.54	2.93	1.61	.06	-1.12	-2.27	-1.78	-.50	.94	2.20	3.69	4.81
$\Delta\beta$	.90	.77	.59	.40	.14	-.09	-.33	-.22	.04	.29	.49	.69	.80
α_i	2.35	1.93	1.52	1.18	.79	.42	.09	.23	.60	.99	1.30	1.69	2.05
c_n	.8411	.6955	.5471	.4265	.2887	.1519	.0348	.0832	.2181	.3600	.4684	.6110	.7371
c_m	-.0275	-.0401	-.0492	-.0557	-.0734	-.0748	-.0782	-.0760	-.0690	-.0633	-.0510	-.0438	-.0365
c_c							.0160						

	c/b	Pressure coefficient, P												
Upper surface	0.000	1.111	1.116	1.124	1.130	1.138	1.146	1.151	1.149	1.141	1.132	1.126	1.119	1.114
	.025	-2.179	-1.757	-.823	-.452	-.048	.227	.364	.340	.097	-.242	-.608	-1.047	-1.928
	.050	-2.129	-1.616	-.927	-.570	-.232	.012	.189	.116	-.107	-.395	-.700	-1.152	-1.809
	.100	-1.902	-.791	-.723	-.521	-.289	-.109	.032	-.027	-.197	-.317	-.596	-.825	-.887
	.200	-.728	-.764	-.654	-.534	-.379	-.255	-.149	-.193	-.317	-.454	-.581	-.708	-.765
	.300	-.692	-.676	-.598	-.518	-.408	-.316	-.235	-.269	-.361	-.462	-.547	-.634	-.682
	.400	-.617	-.596	-.543	-.487	-.415	-.353	-.290	-.314	-.383	-.454	-.505	-.567	-.601
	.500	-.560	-.544	-.513	-.477	-.428	-.387	-.347	-.361	-.408	-.454	-.489	-.525	-.545
	.600	-.511	-.504	-.492	-.476	-.450	-.429	-.407	-.413	-.440	-.464	-.476	-.493	-.503
	.700	-.427	-.428	-.430	-.431	-.423	-.420	-.417	-.413	-.422	-.432	-.428	-.429	-.424
	.800	-.281	-.285	-.297	-.307	-.341	-.346	-.343	-.340	-.350	-.328	-.299	-.292	-.283
	.900	-.061	-.053	-.060	-.064	-.093	-.101	-.106	-.100	-.097	-.095	-.060	-.059	-.055
	.950	.034	.047	.053	.061	.039	.028	.025	.030	.031	.038	.060	.050	.045
Lower surface	.0375	.600	.494	.320	.141	-.132	-.436	-.999	-.677	-.271	.008	.223	.410	.532
	.075	.478	.390	.251	.119	-.072	-.266	-.468	-.318	-.162	.024	.179	.322	.421
	.150	.353	.285	.179	.084	-.044	-.167	-.276	-.228	-.106	.018	.129	.231	.310
	.250	.264	.210	.125	.054	-.038	-.130	-.210	-.172	-.079	.006	.087	.167	.217
	.350	.187	.156	.084	.028	-.045	-.119	-.180	-.148	-.079	-.011	.054	.119	.173
	.450	.145	.106	.045	0	-.059	-.119	-.164	-.140	-.085	-.033	.022	.075	.122
	.550	.087	.054	.005	-.033	-.076	-.120	-.152	-.132	-.094	-.051	-.007	.038	.078
	.650	.066	.039	-.003	-.032	-.065	-.100	-.120	-.108	-.081	-.051	-.018	.017	.051
	.750	.043	.025	-.007	-.028	-.045	-.064	-.074	-.068	-.053	-.040	-.017	.009	.034
	.850	.038	.028	.009	0	.002	-.002	0	.002	.004	.001	.004	.020	.036
	.925	.041	.039	.030	.035	.062	.070	.078	.077	.071	.055	.035	.038	.047
	.975	.036	.042	.051	.076	.134	.148	.155	.154	.147	.125	.066	.049	.048
	1.000	b.031	b.052	b.063	b.096	a.185	a.201	a.201	a.194	a.192	a.184	b.080	b.054	b.048

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(d) N = 1600 rpm; $\beta_{0.75R}$ = 45°.

J	2.070	2.161	2.262	2.360	2.468	2.526	2.490	2.431	2.325	2.231	2.129
M	.728	.739	.759	.776	.794	.806	.798	.787	.765	.751	.732
$\alpha_x{'}$	3.73	2.50	1.19	−.02	−1.30	−1.96	−1.55	−.87	.41	1.59	2.93
$\Delta\beta$	.77	.56	.35	.08	−.25	−.45	−.33	−.13	.19	.42	.64
α_1	1.83	1.49	1.12	.77	.38	.09	.25	.52	.87	1.25	1.62
c_n	.6594	.5387	.4058	.2794	.1400	.0310	.0910	.1903	.3161	.4516	.5826
c_m	−.0420	−.0533	−.0677	−.0769	−.0877	−.0900	−.0882	−.0775	−.0714	−.0595	−.0508
c_c			.0033	.0105	.0158	.0157	.0157	.0141	.0076		

c/b	Pressure coefficient, P										
Upper surface											
0.000	1.140	1.145	1.153	1.160	1.167	1.173	1.169	1.165	1.155	1.149	1.142
.025	−1.032	−.626	−.247	.063	.323	.429	.363	.225	−.050	−.409	−.732
.050	−1.131	−.906	−.428	−.147	.094	.199	.134	.003	−.247	−.582	−1.068
.100	−1.071	−.688	−.443	−.237	−.048	.044	−.013	−.120	−.314	−.545	−.785
.200	−.796	−.686	−.509	−.367	−.226	−.152	−.197	−.281	−.420	−.581	−.724
.300	−.700	−.644	−.532	−.429	−.318	−.254	−.293	−.362	−.468	−.577	−.663
.400	−.608	−.580	−.523	−.456	−.375	−.321	−.354	−.404	−.481	−.542	−.587
.500	−.555	−.546	−.530	−.502	−.451	−.412	−.436	−.471	−.512	−.531	−.549
.600	−.516	−.519	−.534	−.548	−.543	−.520	−.536	−.544	−.536	−.520	−.516
.700	−.430	−.442	−.470	−.497	−.548	−.572	−.552	−.511	−.481	−.452	−.438
.800	−.276	−.290	−.323	−.344	−.370	−.358	−.357	−.348	−.335	−.303	−.288
.900	−.031	−.035	−.056	−.071	−.083	−.072	−.072	−.068	−.063	−.043	−.039
.950	.074	.074	.079	.069	.059	.070	.070	.072	.077	.079	.066
Lower surface											
.0375	.416	.265	.042	−.218	−.677	−1.037	−.829	−.433	−.113	.145	.324
.075	.332	.216	.052	−.125	−.375	−.880	−.572	−.256	−.058	.128	.259
.150	.245	.156	.042	−.079	−.221	−.271	−.242	−.159	−.034	.094	.190
.250	.180	.110	.023	−.064	−.173	−.220	−.192	−.125	−.032	.062	.135
.350	.131	.072	.002	−.069	−.153	−.196	−.168	−.119	−.044	.035	.093
.450	.086	.036	−.022	−.082	−.148	−.183	−.158	−.120	−.061	.004	.053
.550	.046	.005	−.046	−.094	−.143	−.170	−.151	−.124	−.079	−.023	.019
.650	.025	−.010	−.047	−.082	−.115	−.136	−.123	−.105	−.071	−.032	−.001
.750	.014	−.010	−.033	−.055	−.073	−.083	−.074	−.068	−.049	−.023	−.001
.850	.028	.012	.004	.001	.001	−.005	−.003	−.004	−.002	.006	.019
.925	.042	.038	.055	.065	.080	.073	.071	.063	.056	.047	.042
.975	.059	.064	.110	.135	.155	.142	.137	.128	.113	.086	.062
1.000	b.068	b.075	b.144	a.175	a.195	b.186	b.169	b.163	b.147	b.109	b.076

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(e) $M = 0.56$; $\beta_{0.75R} = 45°$.

J	2.131	2.161	2.191	2.226	2.253	2.280	2.321	2.351	2.378	2.399	2.437	2.476	2.509	2.542
M_x	.812	.806	.798	.791	.787	.779	.778	.774	.767	.761	.756	.753	.749	.742
$\alpha_x{'}$	2.91	2.50	2.10	1.65	1.31	.96	.46	.09	-.24	-.49	-.94	-1.39	-1.76	-2.14
$\Delta\beta$	.57	.51	.44	.37	.31	.26	.18	.11	.06	.01	-.06	-.13	-.19	-.24
α_1	1.66	1.49	1.39	1.27	1.17	1.03	.92	.79	.65	.55	.43	.33	.21	.09
c_n	.5974	.5400	.5026	.4587	.4252	.3748	.3342	.2858	.2368	.2006	.1581	.1194	.0781	.0323
c_m	-.0718	-.0677	-.0687	-.0701	-.0762	-.0714	-.0729	-.0723	-.0710	-.0736	-.0739	-.0751	-.0757	-.0752
c_c	-.0053	-.0023	-.0003	.0119	.0034	.0054	.0082	.0099	.0115	.0130	.0145			
c/b	Pressure coefficient, P													
Upper surface														
0.000	1.176	1.173	1.169	1.166	1.165	1.162	1.161	1.159	1.156	1.154	1.151	1.150	1.149	1.146
.025	-.420	-.378	-.341	-.272	-.207	-.128	-.038	.033	.113	.166	.235	.308	.354	.409
.050	-.734	-.687	-.595	-.483	-.408	-.326	-.239	-.170	-.096	-.047	.014	.085	.128	.181
.100	-.656	-.553	-.532	-.487	-.435	-.374	-.309	-.254	-.194	-.156	-.106	-.049	-.016	.029
.200	-.714	-.659	-.619	-.567	-.523	-.471	-.422	-.378	-.326	-.296	-.257	-.213	-.184	-.148
.300	-.734	-.684	-.639	-.599	-.572	-.524	-.476	-.434	-.391	-.362	-.326	-.287	-.264	-.232
.400	-.747	-.702	-.685	-.625	-.575	-.532	-.495	-.458	-.415	-.391	-.362	-.330	-.308	-.281
.500	-.776	-.753	-.699	-.639	-.577	-.542	-.517	-.484	-.449	-.429	-.403	-.375	-.358	-.335
.600	-.844	-.762	-.696	-.639	-.598	-.570	-.555	-.523	-.490	-.473	-.451	-.428	-.412	-.392
.700	-.440	-.461	-.481	-.498	-.492	-.489	-.489	-.477	-.460	-.453	-.443	-.427	-.417	-.403
.800	-.216	-.238	-.272	-.302	-.314	-.321	-.334	-.336	-.334	-.341	-.341	-.336	-.336	-.330
.900	-.009	-.003	-.016	-.029	-.036	-.046	-.063	-.070	-.070	-.078	-.087	-.091	-.094	-.102
.950	.071	.086	.088	.093	.090	.084	.070	.064	.063	.055	.046	.038	.033	.023
Lower surface														
.0375	.264	.205	.149	.096	.045	-.023	-.114	-.189	-.266	-.338	-.441	-.571	-.727	-.977
.075	.224	.178	.133	.094	.056	.007	-.057	-.107	-.156	-.204	-.262	-.300	-.328	-.357
.150	.167	.134	.098	.073	.046	.013	-.031	-.065	-.096	-.126	-.163	-.201	-.234	-.270
.250	.121	.092	.067	.048	.029	.005	-.031	-.055	-.073	-.095	-.126	-.153	-.175	-.202
.350	.079	.057	.034	.020	.008	-.013	-.042	-.061	-.074	-.093	-.116	-.133	-.151	-.172
.450	.037	.003	.001	-.010	-.020	-.035	-.058	-.075	-.083	-.099	-.118	-.128	-.141	-.158
.550	0	-.016	-.031	-.036	-.045	-.057	-.078	-.088	-.094	-.106	-.119	-.127	-.134	-.147
.650	-.023	-.032	-.044	-.045	-.048	-.057	-.070	-.078	-.081	-.090	-.099	-.101	-.109	-.118
.750	-.026	-.031	-.037	-.035	-.035	-.039	-.048	-.052	-.052	-.057	-.063	-.063	-.063	-.072
.850	-.002	-.003	-.006	.003	.005	.005	.005	.002	.004	.001	-.003	.001	0	0
.925	.028	.032	.034	.049	.056	.059	.059	.060	.067	.065	.065	.076	.078	.077
.975	.049	.061	.072	.108	.119	.125	.132	.134	.140	.139	[a].140	[a].152	[a].154	[a].153
1.000	[b].058	[b].080	[b].096	[b].162	[b].154	[b].158	[b].179	[b].181	[b].205	[b].180	[a].218	[a].207	[a].222	[a].216

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-306.62 PROPELLER BLADE SECTION (x = 0.70) - Continued

(f) M = 0.60; $\beta_{0.75R}$ = 45°

J	2.155	2.183	2.210	2.228	2.253	2.282	2.299	2.327	2.372	2.393	2.422	2.457	2.484	2.516
M_x	.864	.859	.853	.847	.843	.838	.832	.827	.825	.819	.814	.809	.805	.801
α_x'	2.58	2.20	1.86	1.63	1.30	.95	.74	.38	-.17	-.42	-.76	-1.17	-1.49	-1.85
$\Delta\beta$	.37	.34	.30	.26	.21	.15	.11	.05	-.06	-.11	-.18	-.27	-.32	-.39
α_1	1.38	1.26	1.19	1.11	1.04	.95	.89	.79	.64	.59	.48	.35	.25	.14
c_n	.4968	.4542	.4284	.4019	.3781	.3439	.3219	.2871	.2310	.2129	.1729	.1258	.0897	.0503
c_m	-.0844	-.0857	-.0836	-.0846	-.0811	-.0805	-.0805	-.0828	-.0847	-.0873	-.0882	-.0909	-.0905	-.0936
c_c	.0152	.0150	.0132	.0113	.0103	.0107	.0119	.0122	.0142	.0147	.0153	.0159	.0167	.0165

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.200	1.198	1.195	1.192	1.190	1.188	1.184	1.183	1.182	1.179	1.177	1.174	1.172	1.171
.025	-.175	-.125	-.089	-.061	-.169	-.028	.060	.120	.211	.235	.307	.340	.371	.416
.050	-.468	-.372	-.320	-.282	-.235	-.189	-.157	-.099	-.013	.010	.055	.111	.141	.188
.100	-.395	-.368	-.352	-.335	-.304	-.270	-.244	-.201	-.132	-.115	-.079	-.032	-.008	.031
.200	-.538	-.502	-.472	-.454	-.431	-.405	-.386	-.351	-.296	-.281	-.252	-.214	-.193	-.159
.300	-.589	-.556	-.529	-.508	-.482	-.465	-.462	-.443	-.393	-.377	-.350	-.314	-.292	-.259
.400	-.644	-.604	-.578	-.565	-.556	-.538	-.514	-.482	-.447	-.438	-.412	-.377	-.356	-.327
.500	-.685	-.649	-.633	-.631	-.617	-.586	-.571	-.553	-.504	-.495	-.478	-.455	-.435	-.407
.600	-.766	-.748	-.740	-.732	-.711	-.688	-.665	-.631	-.606	-.597	-.581	-.558	-.547	-.524
.700	-.864	-.858	-.846	-.832	-.811	-.775	-.757	-.744	-.715	-.702	-.683	-.635	-.592	-.557
.800	-.261	-.264	-.262	-.275	-.301	-.299	-.293	-.315	-.345	-.342	-.357	-.372	-.385	-.392
.900	-.191	-.161	-.113	-.061	-.019	-.004	-.008	-.018	-.025	-.039	-.051	-.062	-.072	-.080
.950	-.164	-.110	-.042	.021	.065	.090	.099	.101	.100	.093	.087	.081	.074	.067
Lower surface														
.0375	.146	.085	.043	.001	-.056	-.103	-.151	-.233	-.371	-.433	-.559	-.742	-.860	-1.015
.075	.136	.091	.059	.028	-.013	-.046	-.079	-.134	-.216	-.251	-.320	-.503	-.638	-.833
.150	.103	.069	.047	.025	-.004	-.024	-.048	-.085	-.135	-.156	-.189	-.225	-.238	-.238
.250	.068	.041	.026	.010	-.012	-.024	-.041	-.067	-.103	-.119	-.147	-.176	-.192	-.209
.350	.026	.005	-.006	-.019	-.037	-.047	-.059	-.079	-.107	-.119	-.139	-.159	-.170	-.186
.450	-.021	-.038	-.044	-.054	-.067	-.073	-.081	-.096	-.119	-.127	-.139	-.151	-.160	-.172
.550	-.072	-.083	-.086	-.091	-.101	-.102	-.106	-.116	-.130	-.135	-.141	-.148	-.152	-.159
.650	-.102	-.107	-.104	-.104	-.108	-.104	-.103	-.108	-.114	-.116	-.118	-.121	-.121	-.125
.750	-.117	-.111	-.102	-.096	-.093	-.084	-.078	-.076	-.076	-.075	-.074	-.072	-.072	-.072
.850	-.110	-.093	-.072	-.058	-.047	-.033	-.024	-.017	-.008	-.006	-.002	.003	.006	.006
.925	-.105	-.071	-.034	-.007	.011	.030	.042	.054	.066	.068	.073	.081	.083	.084
.975	-.151	-.092	-.027	.023	.057	.084	.101	.113	.126	.131	.136	.142	.146	.149
1.000	b-.195	b-.112	b-.025	b.040	b.077	b.114	b.137	b.146	b.158	b.165	b.171	b.177	b.180	b.182

bLower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN NACA 16-306.62 PROPELLER BLADE SECTION (x = 0.70) - Continued

(g) $M = 0.65$; $\beta_{0.75R} = 45°$.

	2.100	2.125	2.153	2.176	2.199	2.220	2.246	2.284	2.306	2.335	2.347	2.386	2.413	2.445
J	2.100	2.125	2.153	2.176	2.199	2.220	2.246	2.284	2.306	2.335	2.347	2.386	2.413	2.445
M_x	.943	.937	.930	.925	.921	.916	.907	.904	.895	.890	.885	.879	.874	.869
α_x'	3.32	2.98	2.61	2.30	2.00	1.73	1.40	.92	.64	.28	.14	-.34	-.65	-1.03
$\Delta\beta$	.46	.39	.31	.24	.17	.12	.04	-.07	-.14	-.22	-.25	-.37	-.45	-.55
α_1	1.22	1.13	1.06	.95	.86	.83	.73	.61	.56	.43	.34	.23	.12	.07
c_n	.4368	.4071	.3832	.3432	.3103	.2987	.2632	.2206	.1916	.1561	.1239	.0839	.0445	.0265
c_m	-.1019	-.1018	-.0959	-.0906	-.0883	-.0898	-.0888	-.0872	-.0865	-.0887	-.0821	-.0819	-.0870	-.0965
c_c	.0359	.0351	.0348	.0351	.0349	.0346	.0336	.0318	.0314	.0292	.0288	.0259	.0256	.0247
c/b	Pressure coefficient, P													
Upper surface														
0.000	1.242	1.238	1.235	1.232	1.230	1.227	1.222	1.221	1.217	1.214	1.211	1.208	1.205	1.203
.025	.015	.037	.051	.082	.109	.135	.173	.219	.250	.287	.308	.344	.375	.414
.050	-.258	-.211	-.187	-.147	-.115	-.088	-.049	-.003	.028	.065	.085	.121	.152	.190
.100	-.226	-.215	-.215	-.203	-.189	-.174	-.146	-.111	-.087	-.057	-.043	-.015	.011	.042
.200	-.376	-.366	-.361	-.340	-.324	-.310	-.291	-.267	-.249	-.224	-.214	-.193	-.172	-.145
.300	-.435	-.427	-.426	-.410	-.397	-.382	-.359	-.336	-.326	-.317	-.315	-.304	-.284	-.255
.400	-.489	-.482	-.484	-.469	-.455	-.443	-.427	-.412	-.403	-.386	-.376	-.354	-.341	-.328
.500	-.544	-.538	-.538	-.518	-.508	-.501	-.493	-.482	-.473	-.451	-.446	-.435	-.425	-.400
.600	-.625	-.620	-.621	-.611	-.609	-.604	-.600	-.584	-.575	-.561	-.559	-.551	-.528	-.511
.700	-.716	-.714	-.719	-.715	-.717	-.716	-.709	-.695	-.686	-.675	-.676	-.659	-.646	-.639
.800	-.797	-.806	-.816	-.818	-.816	-.814	-.811	-.794	-.773	-.732	-.712	-.662	-.664	-.687
.900	-.379	-.376	-.365	-.342	-.342	-.324	-.280	-.221	-.202	-.178	-.165	-.127	-.098	-.062
.950	-.353	-.351	-.341	-.317	-.310	-.289	-.245	-.194	-.172	-.145	-.126	-.077	-.042	.012
Lower surface														
.0375	.137	.089	.044	-.009	-.060	-.104	-.187	-.293	-.376	-.480	-.547	-.631	-.693	-.765
.075	.141	.104	.066	.026	-.012	-.044	-.100	-.162	-.212	-.304	-.397	-.537	-.622	-.697
.150	.118	.089	.058	.029	.001	-.022	-.061	-.100	-.126	-.147	-.170	-.244	-.371	-.544
.250	.084	.060	.032	.009	-.013	-.046	-.061	-.088	-.114	-.131	-.150	-.168	-.194	-.216
.350	.040	.019	-.006	-.026	-.046	-.093	-.105	-.129	-.151	-.164	-.179	-.197	-.209	-.238
.450	-.014	-.034	-.057	-.075	-.093	-.105	-.129	-.151	-.164	-.179	-.197	-.218	-.231	-.254
.550	-.079	-.097	-.121	-.136	-.153	-.164	-.184	-.201	-.210	-.220	-.236	-.252	-.259	-.254
.650	-.142	-.161	-.183	-.198	-.212	-.221	-.235	-.243	-.251	-.240	-.230	-.233	-.214	-.195
.750	-.187	-.204	-.223	-.233	-.245	-.250	-.256	-.243	-.240	-.230	-.233	-.214	-.195	-.166
.850	-.224	-.243	-.259	-.261	-.264	-.252	-.231	-.201	-.182	-.165	-.160	-.139	-.112	-.081
.925	-.206	-.221	-.234	-.236	-.236	-.224	-.198	-.164	-.145	-.125	-.114	-.076	-.051	-.011
.975	-.286	-.300	-.313	b-.315	b-.312	-.290	-.246	-.192	-.168	-.137	-.115	-.061	-.025	.030
1.000	a-.330	a-.338	a-.333	b-.365	b-.423	b-.346	b-.289	b-.215	b-.182	b-.140	b-.126	b-.062	b-.010	b.040

[a] Faired value.

[b] Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(h) One-blade propeller; N = 1500 rpm; $\beta_{0.75R} = 45°$.

	J	2.273	2.222	2.182	2.120	2.056	2.020	1.977	1.928	1.867	1.820	1.753	1.715
	M_x	.697	.688	.680	.672	.663	.659	.651	.645	.635	.627	.622	.616
	α_x'	1.05	1.70	2.22	3.05	3.93	4.43	5.04	5.76	6.67	7.39	8.44	9.05
	$\Delta\beta$	.31	.41	.49	.60	.71	.76	.83	.89	.97	1.03	1.08	1.11
	α_1	.79	.96	1.04	1.24	1.41	1.56	1.72	1.85	2.06	2.18	2.16	2.18
	c_n	.3371	.4074	.4487	.5316	.6026	.6697	.7394	.7916	.8877	.9432	.9342	.9445
	c_m	-.0545	-.0549	-.0493	-.0489	-.0439	-.0361	-.0334	-.0234	-.0146	-.0095	-.0221	-.0357
	c_c												
	c/b	Pressure coefficient, P											
Upper surface	0.000	1.128	1.124	1.121	1.118	1.113	1.112	1.110	1.108	1.105	1.102	1.100	1.097
	.025	-.206	-.352	-.493	-.728	-1.028	-1.713	-2.022	-2.260	-2.517	-2.661	-2.170	-1.774
	.050	-.339	-.478	-.594	-.791	-.948	-1.146	-1.842	-2.031	-2.253	-2.418	-1.923	-1.671
	.100	-.390	-.491	-.574	-.711	-.829	-.865	-.930	-1.254	-1.836	-2.018	-1.603	-1.532
	.200	-.405	-.467	-.518	-.603	-.669	-.706	-.731	-.743	-.811	-.980	-1.201	-1.245
	.300	-.428	-.473	-.508	-.564	-.609	-.636	-.659	-.674	-.671	-.687	-.931	-.993
	.400	-.415	-.446	-.470	-.512	-.540	-.559	-.575	-.585	-.584	-.581	-.702	-.768
	.500	-.434	-.452	-.467	-.496	-.514	-.522	-.526	-.535	-.527	-.529	-.538	-.578
	.600	-.425	-.439	-.447	-.459	-.467	-.466	-.465	-.462	-.450	-.442	-.410	-.453
	.700	-.396	-.400	-.402	-.408	-.404	-.395	-.384	-.377	-.364	-.354	-.315	-.355
	.800	-.276	-.279	-.275	-.271	-.263	-.247	-.231	-.226	-.218	-.213	-.218	-.260
	.900	-.055	-.054	-.051	-.049	-.043	-.033	-.032	-.036	-.040	-.049	-.138	-.184
	.950	.065	.064	.063	.061	.057	.054	.044	.037	.032	.024	-.102	-.149
Lower surface	.0375	.002	.107	.185	.301	.394	.458	.521	.573	.641	.689	.714	.740
	.075	.078	.152	.209	.291	.361	.408	.457	.496	.553	.587	.606	.629
	.150	.090	.139	.179	.237	.287	.326	.362	.391	.434	.463	.473	.488
	.250	.030	.067	.097	.144	.186	.216	.245	.273	.313	.336	.348	.365
	.350	-.006	.025	.052	.087	.123	.151	.174	.195	.231	.251	.258	.273
	.450	-.023	.001	.023	.053	.081	.104	.126	.142	.174	.192	.192	.205
	.550	-.033	-.015	.002	.030	.054	.072	.089	.103	.129	.145	.139	.145
	.650	-.047	-.033	-.019	-.001	.018	.034	.045	.057	.079	.090	.077	.078
	.750	-.029	-.019	-.010	.001	.016	.026	.032	.041	.057	.065	.038	.034
	.850	.011	.015	.019	.022	.029	.032	.032	.036	.045	.050	.004	-.006
	.950	.060	.058	.058	.058	.057	.056	.050	.047	.052	.051	-.012	-.033
	.975	[a].090	[a].082	[a].076	[a].065	[a].055	[a].043	[a].029	[a].021	[a].024	[a].019	[a]-.088	[a]-.124
	1.000	[a].195	[a].150	[a].190	[a].180	[a].155	[a]0	[a]0	[a]0	[a].160	[a]0	[a]-.145	[a]-.215

[a]Faired value.

NACA

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(1) One-blade propeller; M = 0.57; $\beta_{0.75R} = 45°$.

J	2.447	2.425	2.397	2.365	2.332	2.301	2.281	2.245	2.230	2.202	2.178	2.149	2.130	2.103	2.084	2.063	2.040	2.020	2.000
M_x	.764	.770	.773	.779	.780	.784	.790	.794	.799	.804	.807	.813	.821	.826	.830	.833	.838	.842	.847
$\alpha_x{}'$	-1.05	-.80	-.46	-.08	.32	.70	.95	1.41	1.60	1.96	2.28	2.66	2.91	3.28	3.54	3.83	4.15	4.43	4.71
$\Delta\beta$	-.08	-.04	.02	.08	.15	.23	.26	.33	.36	.42	.47	.53	.57	.63	.67	.72	.77	.81	.86
α_i	.33	.42	.52	.62	.80	.90	.99	1.04	1.11	1.18	1.25	1.30	1.36	1.46	1.52	1.59	1.67	1.70	1.91
c_n	.1419	.1823	.2245	.2639	.3432	.3832	.4226	.4439	.4765	.5048	.5355	.5574	.5832	.6232	.6503	.6819	.7181	.7316	.8206
c_m	-.0647	-.0652	-.0655	-.0639	-.0582	-.0580	-.0582	-.0556	-.0561	-.0567	-.0528	-.0524	-.0420	-.0570	-.0655	-.0744	-.0844	-.0900	-.1285
c_c				.0102	.0097	.0081	.0067	.0055	.0034	.0012	-.0004	-.0016	-.0023	-.0023	-.0006	.0011	.0044	.0070	.0136
c/b	Pressure coefficient, P																		
Upper surface																			
0.000	1.155	1.158	1.159	1.160	1.162	1.164	1.166	1.168	1.170	1.172	1.174	1.177	1.179	1.182	1.183	1.185	1.189	1.189	1.193
.025	.263	.210	.146	.083	.002	-.072	-.132	-.192	-.243	-.300	-.348	-.380	-.404	-.429	-.445	-.458	-.459	-.468	-.539
.050	.034	-.015	-.072	-.131	-.203	-.270	-.328	-.263	-.439	-.515	-.595	-.638	-.668	-.699	-.709	-.718	-.718	-.703	-.691
.100	-.103	-.144	-.194	-.239	-.300	-.356	-.406	-.460	-.492	-.516	-.534	-.578	-.638	-.571	-.684	-.708	-.725	-.725	-.721
.200	-.216	-.252	-.292	-.331	-.381	-.432	-.481	-.525	-.538	-.554	-.630	-.662	-.681	-.715	-.741	-.765	-.787	-.796	-.806
.300	-.297	-.329	-.367	-.401	-.448	-.499	-.539	-.560	-.566	-.621	-.645	-.694	-.730	-.770	-.794	-.823	-.850	-.856	-.861
.400	-.326	-.355	-.387	-.418	-.459	-.504	-.532	-.552	-.596	-.638	-.660	-.696	-.735	-.782	-.808	-.834	-.864	-.871	-.881
.500	-.381	-.407	-.438	-.463	-.499	-.538	-.561	-.583	a-.676	-.733	-.749	-.769	-.815	-.854	-.876	-.900	-.909	-.921	
.600	a-.442	a-.456	a-.500	a-.512	-.534	-.545	a-.541	a-.553	a-.584	-.599	-.582	a-.593	a-.589	a-.627	a-.635	a-.621	a-.638	a-.651	a-.781
.700	-.401	-.416	-.427	-.433	-.441	-.446	-.442	-.444	-.433	-.424	-.406	-.392	-.394	-.408	-.429	-.429	-.429	-.429	-.661
.800	-.271	-.273	-.274	-.270	-.268	-.263	-.251	-.246	-.233	-.220	-.208	-.192	-.183	-.188	-.226	-.280	-.340	-.367	-.615
.900	-.044	-.041	-.035	-.028	-.025	-.018	-.007	-.004	.006	.007	.009	.002	-.005	-.035	-.087	-.154	-.250	-.307	-.577
.950	.080	.083	.086	.091	.091	.093	.098	.097	.099	.092	.086	.072	.056	.025	-.025	-.084	-.186	-.261	-.314
Lower surface																			
.0375	-.419	-.346	-.256	-.160	.339	.379	.394	.398	.406	.408	.415	.430	.495	.500	.506	.429	.434	.439	.444
.075	-.194	-.153	-.107	-.058	-.006	.040	.083	.117	.150	.183	.213	.241	.266	.295	.314	.340	.367	.378	.396
.150	-.085	-.055	-.021	.011	.042	.073	.107	.128	.155	.177	.201	.219	.239	.262	.276	.297	.318	.330	.340
.250	-.098	-.078	-.057	-.029	-.006	.017	.041	.058	.079	.095	.111	.127	.142	.160	.172	.189	.207	.216	.228
.350	-.107	-.093	-.078	-.057	-.040	-.021	.001	.012	.030	.043	.056	.066	.080	.094	.103	.119	.132	.140	.149
.450	-.092	-.082	-.067	-.052	-.040	-.024	-.005	.002	.017	.026	.037	.044	.054	.066	.070	.084	.096	.101	.106
.550	-.098	-.092	-.083	-.069	-.060	-.048	-.034	-.028	-.016	-.010	-.005	.001	.009	.017	.019	.030	.038	.039	.044
.650	-.092	-.087	-.081	-.070	-.066	-.057	-.046	-.044	-.034	-.032	-.029	-.028	-.023	-.020	-.021	-.016	-.012	-.014	-.013
.750	-.059	-.056	-.055	-.047	-.044	-.038	-.031	-.031	-.025	-.026	-.025	-.028	-.027	-.027	-.034	-.035	-.038	-.045	-.046
.850	.004	.004	.004	.006	-.018	.008	.015	.011	.014	.011	.007	.001	-.002	-.008	-.022	-.029	-.046	-.062	-.074
.925	.069	.067	.063	.064	.061	.058	.061	.056	.058	.052	.043	.030	.024	.011	-.007	-.025	-.058	-.087	-.112
.975	.114	.109	.098	.097	a.123	a.098	a.096	a.089	a.091	a.084	a.069	a.044	a.048	a.029	a.013	a-.020	a-.064	a-.113	a-.150
1.000	b.134	b.133	b.113	b.113	b.153	b.118	b.114	b.107	b.108	b.100	b.082	b.052	b.060	b.036	a.021	a-.015	a-.068	a-.132	b-.168

a Faired value.

b Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(j) One—blade propeller; M = 0.59; $\beta_{0.75R}$ = 45°.

J	2.222	2.202	2.180	2.150	2.124	2.108	2.081	2.060	2.038	2.013	1.996	1.977	1.955	1.943
M_x	.830	.837	.840	.840	.845	.854	.860	.863	.868	.871	.878	.881	.886	.890
$\alpha_x{}'$	1.70	1.96	2.25	2.65	3.00	3.21	3.58	3.87	4.18	4.53	4.77	5.04	5.36	5.54
$\Delta\beta$	.33	.36	.40	.44	.48	.50	.53	.55	.58	.61	.64	.67	.71	.73
α_i	1.05	1.11	1.18	1.28	1.34	1.38	1.42	1.47	1.50	1.56	1.60	1.64	1.68	1.71
c_n	.4465	.4729	.5052	.5484	.5729	.5929	.6084	.6277	.6432	.6710	.6877	.7077	.7219	.7368
c_m	−.0692	−.0729	−.0782	−.0826	−.0826	−.0847	−.0832	−.0829	−.0823	−.0855	−.0878	−.0911	−.0967	−.1000
c_c	.0074	.0079	.0097	.0096	.0108	.0118	.0124	.0135	.0136	.0143	.0148	.0152	.0159	.0160

	c/b	Pressure coefficient, P													
Upper surface	0.000	1.184	1.187	1.189	1.189	1.192	1.195	1.198	1.199	1.203	1.204	1.207	1.209	1.211	1.214
	.025	−.144	−.185	−.227	−.256	−.277	−.297	−.320	−.341	−.366	−.386	−.385	−.385	−.402	−.434
	.050	−.353	−.400	−.463	−.504	−.527	−.549	−.573	−.588	−.598	−.610	−.612	−.606	−.595	−.589
	.100	−.419	−.432	−.444	−.457	−.498	−.536	−.563	−.576	−.592	−.614	−.624	−.627	−.623	−.619
	.200	−.474	−.506	−.440	−.586	−.596	−.613	−.638	−.656	−.677	−.698	−.709	−.714	−.717	−.715
	.300	−.560	−.570	−.605	−.629	−.646	−.667	−.691	−.712	−.733	−.755	−.764	−.771	−.771	−.771
	.400	−.579	−.607	−.636	−.663	−.681	−.701	−.721	−.738	−.759	−.783	−.794	−.800	−.800	−.799
	.500	−.660	−.672	−.698	−.716	−.731	−.752	−.775	−.787	−.801	−.820	−.829	−.838	−.840	−.838
	.600	−.721	−.754	−.771	−.783	−.790	−.810	−.835	−.851	−.866	−.880	−.882	−.883	−.870	−.852
	.700	−.676	−.732	−.784	−.778	−.701	−.626	−.530	−.477	−.439	−.429	−.420	−.436	−.471	−.483
	.800	−.199	−.200	−.223	−.238	−.258	−.286	−.307	−.324	−.331	−.346	−.357	−.371	−.386	−.392
	.900	−.008	−.027	−.081	−.122	−.170	−.223	−.259	−.292	−.314	−.335	−.346	−.361	−.377	−.384
	.950	.062	.037	−.021	−.065	−.113	−.187	−.233	−.276	−.305	−.328	−.341	−.359	−.376	−.383
Lower surface	.0375	.103	.137	.177	.218	.252	.279	.310	.342	.369	.403	.425	.444	.466	.484
	.075	.118	.145	.174	.207	.235	.257	.281	.307	.330	.358	.378	.393	.413	.430
	.150	.400	.402	.406	.417	.425	.427	.432	.440	.446	.453	.456	.462	.466	.472
	.250	.057	.071	.086	.109	.126	.139	.155	.172	.188	.206	.219	.230	.245	.258
	.350	.003	.014	.025	.043	.057	.068	.081	.096	.108	.125	.137	.147	.160	.172
	.450	−.020	−.013	−.007	.010	.021	.028	.039	.052	.063	.077	.088	.095	.106	.118
	.550	−.051	−.047	−.044	−.032	−.023	−.019	−.012	−.003	.005	.016	.025	.032	.041	.053
	.650	−.072	−.072	−.074	−.068	−.064	−.065	−.061	−.056	−.052	−.044	−.037	−.034	−.026	−.016
	.750	−.065	−.070	−.079	−.076	−.079	−.086	−.088	−.089	−.091	−.088	−.082	−.083	−.077	−.069
	.850	−.027	−.035	−.052	−.058	−.067	−.086	−.097	−.105	−.113	−.115	−.114	−.116	−.114	−.106
	.925	.020	.007	−.017	−.031	−.053	−.086	−.108	−.126	−.141	−.148	−.149	−.151	−.149	−.142
	.975	[a].080	[a].042	[a].010	[a]−.018	[a]−.041	[a]−.090	[a]−.122	[a]−.166	[a]−.197	[a]−.200	[a]−.210	[a]−.200	[a]−.212	[a]−.207
	1.000	[a].122	[a].061	[a].021	[a]−.009	[a]−.035	[b]−.090	[b]−.130	[a]−.208	[a]−.240	[a]−.252	[a]−.280	[b]−.220	[b]−.290	[a]−.295

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—306.62 PROPELLER BLADE SECTION (x = 0.70) — Continued

(k) One—blade propeller; M = 0.61; $\beta_{0.75R}$ = 45°.

J		2.287	2.220	2.197	2.176	2.150	2.130	2.103	2.084	2.064	2.042	2.025	2.010	1.991	1.964
M_x		.856	.858	.866	.869	.874	.878	.884	.888	.891	.897	.900	.907	.912	.914
α_x'		.88	1.73	2.03	2.30	2.65	2.91	3.28	3.54	3.82	4.12	4.36	4.57	4.84	5.23
$\Delta\beta$		.14	.28	.32	.35	.38	.40	.42	.44	.48	.52	.56	.59	.62	.71
α_1		.69	.98	1.03	1.10	1.16	1.21	1.25	1.28	1.35	1.40	1.44	1.51	1.55	1.59
c_n		.2935	.4194	.4432	.4729	.5006	.5168	.5355	.5503	.5806	.6039	.6226	.6477	.6639	.6845
c_m		-.0673	-.0778	-.0783	-.0829	-.0839	-.0829	-.0844	-.0826	-.0921	-.0946	-.0982	-.1018	-.1036	-.1086
c_c		.0153	.0154	.0167	.0171	.0177	.0186	.0189	.0190	.0200	.0200	.0205	.0209	.0201	.0212
c/b		Pressure coefficient, P													
Upper surface	0.000	1.197	1.198	1.201	1.203	1.205	1.208	1.210	1.212	1.215	1.219	1.219	1.222	1.226	1.226
	.025	.104	-.051	-.082	-.113	-.152	-.177	-.199	-.216	-.232	-.249	-.259	-.279	-.297	-.312
	.050	-.115	-.269	-.305	-.344	-.399	-.429	-.448	-.469	-.484	-.496	-.501	-.505	-.512	-.521
	.100	-.238	-.350	-.357	-.363	-.372	-.395	-.438	-.467	-.483	-.494	-.501	-.510	-.522	-.535
	.200	-.361	-.418	-.454	-.490	-.515	-.527	-.537	-.554	-.569	-.579	-.589	-.600	-.611	-.625
	.300	-.408	-.510	-.518	-.543	-.571	-.586	-.599	-.616	-.630	-.641	-.654	-.664	-.674	-.686
	.400	-.482	-.552	-.568	-.581	-.611	-.627	-.640	-.651	-.662	-.673	-.684	-.694	-.704	-.719
	.500	-.556	-.617	-.636	-.651	-.672	-.689	-.699	-.712	-.721	-.725	-.732	-.739	-.747	-.759
	.600	-.635	-.708	-.715	-.726	-.743	-.761	-.770	-.781	-.792	-.793	-.797	-.783	-.770	-.760
	.700	-.748	-.819	-.826	-.828	-.825	-.816	-.804	-.782	-.813	-.812	-.823	-.841	-.828	-.857
	.800	-.230	-.240	-.255	-.257	-.270	-.280	-.297	-.315	-.338	-.351	-.366	-.380	-.380	-.403
	.900	-.049	-.123	-.173	-.195	-.227	-.245	-.269	-.290	-.313	-.329	-.344	-.359	-.363	-.386
	.950	-.008	-.071	-.132	-.163	-.206	-.229	-.260	-.284	-.310	-.326	-.341	-.355	-.359	-.384
Lower surface	.0375	-.098	.071	.109	.146	.188	.217	.251	.284	.308	.337	.353	.384	.410	.431
	.075	-.027	.097	.125	.155	.188	.210	.238	.262	.284	.309	.323	.348	.372	.387
	.150	a-.015	a.090	a.139	a.149	a.169	a.189	a.198	a.211	a.230	a.255	a.269	a.286	a.288	a.318
	.250	-.024	.043	.061	.078	.098	.112	.129	.142	.158	.177	.184	.204	.219	.230
	.350	-.066	-.013	.002	.016	.032	.042	.058	.068	.083	.099	.106	.124	.139	.148
	.450	-.082	-.039	-.029	-.017	-.003	.005	.017	.025	.038	.052	.058	.074	.087	.094
	.550	-.110	-.077	-.071	-.062	-.053	-.047	-.036	-.029	-.020	-.009	-.003	.010	.022	.029
	.650	-.129	-.109	-.110	-.104	-.100	-.097	-.090	-.086	-.082	-.072	-.068	-.056	-.045	-.040
	.750	-.115	-.110	-.119	-.119	-.123	-.126	-.125	-.126	-.124	-.117	-.117	-.107	-.096	-.095
	.850	-.067	-.080	-.098	-.108	-.122	-.130	-.136	-.142	-.145	-.141	-.142	-.134	-.125	-.125
	.925	-.017	-.049	-.080	-.098	-.125	-.138	-.151	-.161	-.166	-.163	-.163	-.156	-.146	-.148
	.975	a.035	a-.040	a-.060	a-.090	a-.149	a-.148	a-.184	a-.198	a-.215	a-.219	a-.225	a-.223	a-.203	a-.225
	1.000	a.063	b-.001	a-.053	a-.108	a-.172	a-.185	a-.219	a-.220	a-.279	a-.275	a-.299	a-.320	a-.281	a-.330

aFaired value.

bLower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 7.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–306.62 PROPELLER BLADE SECTION (x = 0.70) — Concluded

(l) One-blade propeller; M = 0.64; $\beta_{0.75R}$ = 45°.

J	2.250	2.212	2.185	2.166	2.138	2.125	2.100	2.077	2.059	2.040	2.011	1.992
M_x	.895	.902	.904	.911	.912	.918	.921	.926	.931	.935	.940	.944
α_x'	1.35	1.83	2.19	2.43	2.81	2.98	3.32	3.64	3.89	4.15	4.56	4.83
$\Delta\beta$	.03	.14	.21	.27	.35	.39	.46	.52	.57	.63	.74	.81
α_1	.56	.67	.71	.78	.84	.92	1.03	1.12	1.17	1.24	1.30	1.33
c_n	.2394	.2877	.3039	.3355	.3594	.3945	.4419	.4781	.5042	.5332	.5613	.5742
c_m	−.0596	−.0661	−.0705	−.0755	−.0792	−.0881	−.0986	−.1064	−.1097	−.1141	−.1181	−.1267
c_c	.0267	.0281	.0286	.0291	.0294	.0297	.0314	.0318	.0315	.0318	.0326	.0328

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.216	1.220	1.221	1.225	1.225	1.228	1.230	1.233	1.235	1.238	1.240	1.243
.025	.128	.132	.102	.075	.053	.028	−.003	−.028	−.048	−.070	−.092	−.103
.050	−.092	−.090	−.120	−.147	−.172	−.208	−.249	−.280	−.299	−.320	−.342	−.354
.100	−.218	−.206	−.222	−.231	−.238	−.243	−.249	−.263	−.294	−.328	−.356	−.368
.200	−.322	−.293	−.308	−.336	−.360	−.383	−.398	−.408	−.414	−.432	−.454	−.466
.300	−.410	−.394	−.406	−.418	−.434	−.454	−.469	−.479	−.488	−.503	−.523	−.535
.400	−.452	−.445	−.462	−.468	−.483	−.501	−.517	−.525	−.532	−.545	−.562	−.572
.500	−.533	−.514	−.532	−.539	−.546	−.561	−.570	−.582	−.586	−.594	−.609	−.613
.600	−.623	−.599	−.614	−.616	−.614	−.617	−.615	−.610	−.600	−.588	−.581	−.568
.700	−.736	−.720	−.729	−.729	−.733	−.740	−.751	−.758	−.764	−.773	−.785	−.787
.800	−.357	−.371	−.397	−.439	−.482	−.531	−.634	−.691	−.718	−.753	−.802	−.821
.900	−.241	−.235	−.255	−.273	−.291	−.310	−.340	−.356	−.368	−.384	−.407	−.430
.950	−.226	−.223	−.242	−.261	−.279	−.297	−.326	−.340	−.353	−.368	−.391	−.411
Lower surface												
.0375	−.135	−.032	.008	.053	.083	.121	.162	.199	.237	.270	.295	.316
.075	−.055	.033	.063	.097	.122	.154	.188	.189	.173	.200	.210	.224
.150	−.001	.074	.095	.120	.139	.162	.189	.209	.228	.249	.262	.273
.250	−.063	.005	.019	.042	.057	.078	.100	.118	.135	.151	.163	.173
.350	−.113	−.051	−.038	−.019	−.008	.011	.029	.046	.062	.077	.086	.096
.450	−.140	−.082	−.072	−.055	−.047	−.030	−.013	.003	.016	.028	.037	.046
.550	−.180	−.128	−.120	−.105	−.097	−.083	−.069	−.056	−.040	−.029	−.022	−.014
.650	−.236	−.190	−.185	−.174	−.167	−.155	−.141	−.127	−.114	−.104	−.099	−.091
.750	−.248	−.211	−.211	−.204	−.200	−.192	−.182	−.171	−.159	−.150	−.146	−.139
.850	−.232	−.206	−.211	−.209	−.209	−.204	−.199	−.190	−.180	−.174	−.172	−.166
.925	−.217	−.198	−.204	−.204	−.205	−.198	−.194	−.186	−.176	−.170	−.168	−.163
.975	[a]−.215	[a]−.200	[a]−.213	[a]−.215	[a]−.218	[a]−.215	[a]−.200	[a]−.205	[a]−.185	[a]−.178	[a]−.183	[a]−.190
1.000	[a]−.215	[a]−.208	[a]−.228	[a]−.225	[a]−.230	[a]−.228	[a]−.225	[a]−.220	[a]−.200	[a]−.185	[a]−.190	[a]−.200

[a]Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78)

(a) N = 1140 rpm; $\beta_{0.75R} = 45°$.

J	2.584	2.479	2.390	2.302	2.209	2.120	2.026	1.914	1.831	1.729	1.605	1.673	1.780	1.872	1.974	2.063	2.158	2.254	2.354	2.443	2.547
M_x	.617	.607	.597	.586	.571	.564	.552	.536	.526	.519	.503	.513	.527	.536	.545	.556	.567	.578	.588	.598	.612
$\alpha_x{}'$	-2.62	-1.43	-.38	.69	1.87	3.03	4.32	5.91	7.13	8.69	10.68	9.58	7.91	6.52	5.05	3.81	2.53	1.29	.05	-1.01	-2.21
$\Delta\beta$	-.13	-.05	.04	.14	.26	.35	.44	.56	.64	.75	.89	.81	.70	.60	.49	.40	.31	.21	.08	-.01	-.10
α_i	.01	.28	.56	.82	1.13	1.45	1.74	2.18	2.44	2.70	2.96	2.85	2.53	2.35	1.97	1.60	1.29	.97	.65	.41	.09
c_n	.0032	.0910	.1813	.2639	.3639	.4626	.5542	.6877	.7662	.8423	.9215	.8901	.7927	.7399	.6203	.5103	.4161	.3126	.2106	.1326	.0300
c_m	-.0610	-.0598	-.0602	-.0561	-.0526	-.0487	-.0452	-.0358	-.0296	-.0209	-.0460	-.0286	-.0245	-.0302	-.0463	-.0480	-.0488	-.0528	-.0585	-.0588	-.0615
c_c																					

c/b	Pressure coefficient, P																				
Upper surface																					
0.000	1.098	1.095	1.092	1.088	1.084	1.082	1.078	1.074	1.071	1.069	1.065	1.067	1.071	1.074	1.076	1.079	1.082	1.086	1.089	1.092	1.096
.025	.384	.220	.018	-.186	-.419	-.765	-1.019	-1.964	-1.941	-1.779	-1.637	-1.753	-1.845	-1.937	-1.436	-.916	-.610	-.307	-.056	.140	.338
.050	.185	.049	-.113	-.269	-.437	-.681	-.896	-1.505	-1.818	-1.715	-1.557	-1.720	-1.841	-1.779	-1.014	-.802	-.574	-.361	-.170	-.013	.146
.100	.039	-.063	-.181	-.290	-.390	-.565	-.717	-.887	-1.400	-1.593	-1.435	-1.585	-1.607	-1.222	-.794	-.647	-.491	-.350	-.221	-.109	.012
.200	-.083	-.152	-.232	-.303	-.349	-.473	-.565	-.657	-.760	-1.120	-1.135	-1.165	-.894	-.677	-.614	-.524	-.432	-.340	-.258	-.184	-.100
.300	-.159	-.211	-.271	-.322	-.349	-.445	-.508	-.579	-.593	-.761	-.917	-.840	-.635	-.578	-.545	-.484	-.418	-.350	-.290	-.233	-.171
.400	-.204	-.243	-.289	-.328	-.339	-.417	-.459	-.512	-.506	-.545	-.714	-.615	-.510	-.506	-.486	-.445	-.396	-.348	-.303	-.260	-.211
.500	-.235	-.263	-.296	-.326	-.324	-.389	-.422	-.459	-.446	-.536	-.581	-.492	-.434	-.450	-.436	-.410	-.376	-.340	-.309	-.275	-.239
.600	-.282	-.300	-.326	-.345	-.331	-.385	-.443	-.419	-.396	-.363	-.463	-.391	-.370	-.407	-.409	-.396	-.376	-.354	-.333	-.307	-.280
.700	-.277	-.289	-.306	-.318	-.291	-.333	-.340	-.345	-.315	-.282	-.367	-.302	-.289	-.330	-.343	-.341	-.330	-.319	-.311	-.293	-.276
.800	-.249	-.254	-.261	-.266	-.226	-.259	-.255	-.253	-.222	-.199	-.290	-.227	-.198	-.238	-.252	-.264	-.263	-.263	-.264	-.253	-.244
.900	-.122	-.120	-.120	-.118	-.073	-.097	-.088	-.090	-.082	-.102	-.221	-.147	-.081	-.089	-.084	-.097	-.104	-.113	-.122	-.120	-.120
.950	-.005	-.001	.001	.003	.048	.020	.019	.005	-.004	-.056	-.192	-.110	-.022	-.001	.019	.015	.013	.007	0	.001	-.002
Lower surface																					
.0375	-.527	-.321	-.162	-.001	.215	.336	.468	.591	.664	.727	.770	.747	.701	.632	.539	.396	.253	.084	-.099	-.275	-.455
.075	-.371	-.239	-.111	-.006	.157	.238	.340	.443	.508	.570	.615	.592	.550	.480	.402	.284	.172	.053	-.071	-.177	-.324
.150	-.242	-.152	-.069	-.001	.122	.170	.244	.325	.377	.432	.468	.447	.412	.354	.294	.203	.124	.039	-.040	-.115	-.206
.250	-.169	-.108	-.050	.001	.102	.122	.178	.238	.284	.324	.352	.337	.310	.262	.215	.144	.091	.030	-.030	-.082	-.146
.350	-.138	-.093	-.048	-.010	.079	.088	.134	.182	.220	.253	.274	.260	.242	.203	.164	.103	.061	.012	-.038	-.071	-.120
.450	-.116	-.076	-.045	-.014	.063	.064	.103	.143	.175	.198	.209	.201	.190	.157	.123	.075	.043	.005	-.034	-.062	-.100
.550	-.110	-.083	-.058	-.035	.034	.034	.062	.095	.122	.137	.141	.138	.136	.109	.085	.042	.013	-.020	-.049	-.069	-.097
.650	-.090	-.068	-.050	-.033	.028	.020	.042	.068	.086	.096	.086	.091	.096	.078	.062	.026	.003	-.020	-.043	-.057	-.077
.750	-.062	-.047	-.036	-.027	.026	.010	.023	.039	.054	.054	.034	.045	.059	.052	.040	.011	-.003	-.020	-.032	-.040	-.055
.850	-.010	.003	.005	.007	.052	.026	.031	.039	.045	.026	-.012	.011	.044	.048	.045	.026	.017	.010	.007	.001	-.005
.925	.056	.062	.060	.056	.095	.060	.058	.057	.054	.022	-.043	-.005	.044	.061	.068	.054	.055	.057	.058	.061	.062
.975	[a].106	[a].115	[a].112	[a].129	.154	[a].129	[a].118	[a].072	[a].070	[a].010	[a]-.086	[a]-.030	[a].050	[a].076	[a].110	[a].082	[a].097	[a].113	[a].105	[a].125	[a].135
1.000	[a].139	[a].138	[a].140	[a].185	[a].200	[a].180	[a].161	[a].081	[a].080	[a]-.005	[a]-.129	[a]-.042	[a].052	[a].087	[a].140	[a].100	[a].124	[a].151	[a].137	[a].167	[a].185

[a]Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

	J	1.710	1.868	2.034	2.182	2.365	2.527	2.572	2.434	2.278	2.118	1.964	1.806
	M_x	.606	.623	.647	.663	.691	.715	.722	.702	.676	.654	.632	.615
	α_x'	8.99	6.59	4.21	2.22	−.09	−1.97	−2.48	−.90	1.00	3.06	5.20	7.51
	$\Delta\beta$	1.11	.97	.62	.42	.10	−.14	−.18	−.03	.26	.50	.78	1.05
	α_1	2.84	2.54	1.92	1.37	.75	.21	.08	.50	1.05	1.59	2.18	2.68
	c_n	.9026	.8025	.6084	.4403	.2435	.0681	.0258	.1616	.3394	.5110	.6954	.8500
	c_m	−.0240	−.0302	−.0500	−.0537	−.0629	−.0705	−.0762	−.0675	−.0575	−.0506	−.0397	−.0216
	c_c												
	c/b						Pressure coefficient, P						
Upper surface	0.000	1.095	1.102	1.109	1.115	1.125	1.135	1.138	1.130	1.120	1.111	1.105	1.097
	.025	−1.765	−2.520	−1.110	−.617	−.054	.332	.403	.149	−.302	−.871	−2.092	−2.108
	.050	−1.745	−2.365	−1.021	−.624	−.187	.137	.201	−.021	−.382	−.801	−1.452	−1.904
	.100	−1.629	−1.144	−.803	−.539	−.245	−.004	.048	−.125	−.381	−.654	−.840	−1.558
	.200	−1.212	−.724	−.627	−.481	−.295	−.132	−.093	−.216	−.379	−.542	−.684	−1.037
	.300	−.871	−.642	−.565	−.468	−.332	−.211	−.179	−.275	−.394	−.509	−.609	−.729
	.400	−.628	−.553	−.506	−.443	−.347	−.260	−.236	−.305	−.390	−.468	−.535	−.552
	.500	−.502	−.486	−.461	−.425	−.351	−.291	−.273	−.324	−.382	−.438	−.482	−.466
	.600	−.394	−.434	−.439	−.425	−.382	−.345	−.334	−.367	−.400	−.430	−.447	−.392
	.700	−.304	−.345	−.366	−.368	−.348	−.334	−.327	−.345	−.358	−.367	−.368	−.302
	.800	−.224	−.236	−.269	−.286	−.288	−.293	−.294	−.293	−.285	−.276	−.261	−.208
	.900	−.147	−.077	−.089	−.104	−.123	−.142	−.143	−.133	−.116	−.096	−.080	−.093
	.950	−.111	.009	.023	.027	.018	.004	.001	.012	.022	.027	.020	−.038
Lower surface	.0375	.740	.669	.482	.246	−.094	−.439	−.935	−.321	.084	.359	.569	.703
	.075	.587	.520	.356	.169	−.069	−.323	−.362	−.185	.051	.253	.428	.549
	.150	.445	.390	.260	.121	−.036	−.212	−.248	−.125	.039	.182	.317	.415
	.250	.336	.291	.189	.080	−.034	−.159	−.185	−.093	.022	.127	.233	.311
	.350	.259	.227	.140	.052	−.035	−.129	−.149	−.084	.007	.090	.176	.227
	.450	.200	.177	.105	.032	−.034	−.105	−.119	−.069	−.002	.064	.134	.189
	.550	.134	.126	.066	.005	−.050	−.103	−.112	−.079	−.025	.030	.090	.131
	.650	.085	.090	.042	−.009	−.045	−.083	−.089	−.066	−.028	.013	.061	.089
	.750	.037	.061	.027	−.012	−.035	−.054	−.056	−.047	−.025	.002	.038	.054
	.850	.007	.063	.045	.014	.011	.008	.009	.011	.012	.022	.049	.042
	.925	−.007	.068	.068	.057	.067	.075	.079	.071	.061	.059	.067	.037
	.975	a−.040	a.080	a.105	a.125	a.137	a.150	a.132	a.131	a.123	a.109	a.094	a.034
	1.000	a−.062	a.092	a.135	a.167	a.187	a.202	a.166	a.168	a.167	a.146	a.117	a.030

[a]Faired value.

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(c) N = 1500 rpm; $\beta_{0.75R}$ = 45°.

J	1.871	1.954	2.032	2.135	2.240	2.345	2.474	2.550	2.414	2.322	2.206	2.094	2.000	1.934
M_x	.695	.703	.717	.735	.751	.767	.790	.800	.775	.760	.743	.723	.712	.700
α_x'	6.54	5.33	4.23	2.83	1.47	.16	-1.37	-2.24	-.67	.44	1.90	3.38	4.68	5.62
$\Delta\beta$	1.28	1.11	.94	.69	.41	.12	-.23	-.42	-.06	.19	.50	.79	1.02	1.15
α_i	2.92	2.52	2.09	1.68	1.26	.85	.39	.09	.64	1.00	1.40	1.84	2.23	2.64
c_n	.9234	.8006	.6645	.5355	.4045	.2723	.1252	.0290	.2055	.3203	.4477	.5845	.7071	.8358
c_m	-.0255	-.0346	-.0482	-.0541	-.0626	-.0687	-.0828	-.0919	-.0764	-.0672	-.0562	-.0505	-.0442	-.0333
c_c														

Pressure coefficient, P

Upper surface

c/b														
0.000	1.127	1.131	1.136	1.143	1.149	1.156	1.166	1.170	1.160	1.153	1.147	1.138	1.134	1.129
.025	-1.974	-1.694	-1.344	-.814	-.372	-.026	.284	.412	.137	-.130	-.521	-.893	-1.472	-1.791
.050	-1.915	-1.683	-1.342	-.980	-.479	-.181	.090	.210	-.041	-.271	-.612	-1.106	-1.478	-1.774
.100	-1.800	-1.571	-1.231	-.722	-.473	-.258	-.050	.054	-.153	-.324	-.553	-.929	-1.348	-1.657
.200	-1.667	-1.135	-.636	-.594	-.462	-.328	-.154	-.100	-.256	-.372	-.506	-.632	-.617	-1.265
.300	-.786	-.534	-.625	-.562	-.481	-.380	-.271	-.204	-.329	-.414	-.484	-.591	-.579	-.545
.400	-.477	-.517	-.574	-.516	-.470	-.401	-.326	-.278	-.367	-.426	-.484	-.534	-.540	-.499
.500	-.436	-.488	-.526	-.477	-.453	-.409	-.364	-.330	-.390	-.424	-.460	-.492	-.497	-.478
.600	-.418	-.467	-.505	-.469	-.470	-.454	-.443	-.433	-.450	-.461	-.466	-.476	-.475	-.454
.700	-.346	-.382	-.419	-.387	-.399	-.397	-.408	-.412	-.406	-.401	-.394	-.392	-.388	-.371
.800	-.242	-.268	-.305	-.278	-.298	-.306	-.329	-.336	-.322	-.309	-.289	-.280	-.277	-.262
.900	-.071	-.074	-.101	-.073	-.092	-.101	-.117	-.121	-.114	-.104	-.083	-.075	-.077	-.076
.950	.032	.038	.016	.047	.041	.043	.034	.034	.034	.039	.047	.041	.036	.032

Lower surface

c/b														
.0375	.672	.585	.465	.348	.139	-.095	-.776	-1.133	-.301	-.016	.221	.411	.532	.619
.075	.527	.450	.341	.250	.091	-.066	-.236	-.976	-.167	-.016	.152	.299	.402	.480
.150	.404	.338	.246	.184	.070	-.035	-.182	-.188	-.111	.021	.112	.219	.300	.361
.250	.310	.254	.178	.133	.046	-.028	-.134	-.168	-.085	.015	.075	.157	.221	.274
.350	.245	.197	.123	.095	.025	-.032	-.112	-.145	-.075	-.018	.047	.113	.168	.213
.450	.197	.155	.091	.070	.013	-.032	-.094	-.121	-.066	-.024	.027	.080	.127	.166
.550	.140	.103	.044	.031	-.019	-.052	-.097	-.116	-.078	-.046	-.001	.043	.085	.116
.650	.106	.073	.021	.014	-.025	-.048	-.078	-.092	-.066	-.043	-.013	.022	.057	.085
.750	.074	.050	.002	.002	-.025	-.036	-.051	-.057	-.046	-.037	-.016	.009	.040	.062
.850	.074	.059	.014	.027	.013	.014	.015	.016	.015	.010	.010	.030	.055	.072
.925	.091	.079	.045	.065	.062	.075	.087	.090	.081	.069	.063	.063	.082	.093
.975	[a].113	[a].110	[a].092	[a].120	[a].125	[a].151	[a].155	[a].150	[a].153	[a].130	[a].130	[a].109	[a].113	[a].130
1.000	[a].125	[a].132	[a].122	[a].159	[a].162	[a].192	[a].191	[a].184	[a].190	[a].164	[a].180	[a].135	[a].130	[a].151

[a]Faired value.

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(d) N = 1600 rpm; $\beta_{0.75R} = 45°$.

J	2.097	2.158	2.240	2.312	2.393	2.454	2.516	2.486	2.416	2.364	2.338	2.284	2.220	2.141
M_x	.783	.796	.806	.817	.833	.843	.856	.847	.836	.825	.818	.810	.797	.787
α_x'	3.36	2.54	1.47	.57	-.42	-1.13	-1.85	-1.50	-.70	-.06	.24	.92	1.73	2.77
$\Delta\beta$	.89	.71	.48	.24	-.07	-.33	-.62	-.48	-.17	.05	.14	.34	.53	.76
α_i	2.00	1.23	.21	-.64	-1.60	-2.15	-2.80	-2.50	-1.80	-1.28	-1.01	-.28	.48	1.47
c_n	.6394	.5452	.4397	.3361	.2326	.1065	.0142	.0639	.1781	.2765	.3161	.3687	.4603	.5619
c_m	-.0513	-.0606	-.0714	-.0778	-.0839	-.0996	-.1111	-.1083	-.0897	-.0819	-.0804	-.0727	-.0649	-.0577
c_c	-.0124	-.0051	.0034	.0086	.0133	.0169			.0138	.0118	.0094	.0057	.0005	-.0072

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.163	1.169	1.173	1.178	1.185	1.190	1.197	1.192	1.187	1.182	1.178	1.175	1.169	1.165
.025	-.726	-.542	-.273	-.036	.174	.326	.434	.382	.292	.097	.011	-.134	-.355	-.624
.050	-.903	-.747	-.433	-.205	-.014	.129	.236	.183	.101	-.083	-.161	-.295	-.526	-.813
.100	-.891	-.680	-.465	-.294	-.140	-.018	.078	.030	-.036	-.195	-.258	-.364	-.521	-.772
.200	-.906	-.685	-.494	-.382	-.263	-.166	-.085	-.126	-.173	-.306	-.354	-.431	-.532	-.731
.300	-.877	-.656	-.543	-.465	-.367	-.280	-.203	-.241	-.279	-.403	-.444	-.500	-.571	-.661
.400	-.623	-.647	-.545	-.484	-.426	-.363	-.294	-.328	-.352	-.450	-.474	-.509	-.575	-.603
.500	-.483	-.519	-.527	-.492	-.449	-.386	-.347	-.375	-.385	-.467	-.482	-.502	-.509	-.501
.600	-.474	-.518	-.567	-.582	-.540	-.512	-.472	-.496	-.483	-.550	-.559	-.571	-.569	-.512
.700	-.384	-.408	-.423	-.534	-.650	-.642	-.599	-.624	-.609	-.639	-.563	-.447	-.427	-.405
.800	-.258	-.275	-.430	-.289	-.288	-.412	-.622	-.557	-.267	-.296	-.296	-.299	-.290	-.274
.900	-.049	-.057	-.060	-.067	-.066	-.060	-.054	-.058	-.024	-.074	-.082	-.073	-.066	-.059
.950	.063	.062	.066	.067	.070	.073	.079	.077	.115	.065	.066	.063	.061	.058
Lower surface														
.0375	.399	.277	.129	-.053	-.386	-.826	-.941	-.909	-.581	-.211	-.102	.025	.171	.319
.075	.294	.199	.087	-.036	-.159	-.684	-.865	-.824	-.180	-.125	-.069	.013	.116	.229
.150	.224	.149	.070	-.015	-.115	-.160	-.741	-.505	-.120	-.080	-.038	.015	.088	.171
.250	.164	.105	.046	-.019	-.091	-.158	-.240	-.160	-.082	-.067	-.035	.006	.083	.121
.350	.121	.072	.025	-.027	-.081	-.136	-.148	-.149	-.062	-.064	-.040	-.008	.034	.085
.450	.091	.047	.009	-.032	-.075	-.115	-.129	-.126	-.048	-.061	-.043	-.017	.015	.059
.550	.045	.007	-.025	-.057	-.088	-.120	-.129	-.128	-.059	-.079	-.065	-.046	-.020	.017
.650	.026	-.006	-.028	-.053	-.075	-.097	-.099	-.102	-.042	-.069	-.058	-.045	-.026	.002
.750	.008	-.016	-.031	-.044	-.054	-.068	-.065	-.068	-.016	-.054	-.047	-.040	-.031	-.010
.850	a.030	.018	a.005	a-.001	a.005	a0	a.009	a.008	a.050	a.001	a0	a.005	a0	a.010
.925	.072	.063	.069	.074	.082	.084	.088	.086	.131	.077	.075	.072	.062	.062
.975	a.126	a.112	a.131	a.150	a.145	a.165	a.157	a.150	a.195	a.150	a.147	a.135	a.135	a.122
1.000	a.163	a.140	a.170	a.204	a.183	a.208	a.194	a.189	a.234	a.198	a.195	a.170	a.175	a.159

aFaired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(e) $M = 0.56$; $\beta_{0.75R} = 45°$.

J	2.158	2.168	2.208	2.252	2.274	2.310	2.348	2.384	2.404	2.439	2.466	2.503	2.533
M_x	.859	.847	.838	.832	.825	.818	.814	.807	.801	.795	.787	.781	.776
$\alpha_x{}'$	2.53	2.40	1.88	1.32	1.04	.59	.12	-.31	-.55	-.97	-1.28	-1.71	-2.05
$\Delta\beta$	.60	.57	.46	.35	.29	.20	.11	.01	-.03	-.13	-.20	-.29	-.36
α_i	1.64	1.63	1.52	1.30	1.20	1.01	.87	.73	.61	.46	.32	.21	.08
c_n	.5271	.5245	.4871	.4190	.3865	.3252	.2800	.2352	.2284	.1945	.1690	.1213	.0903
c_m	-.0867	-.0988	-.0823	-.0737	-.0774	-.0774	-.0782	-.0814	-.0719	-.0711	-.0664	-.0703	-.0678
c_c	.0061	.0033	.0043	.0053	.0055	.0086	.0104	.0120					

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.198	1.192	1.188	1.185	1.182	1.179	1.177	1.174	1.171	1.168	1.165	1.162	1.160
.025	-.281	-.285	-.236	-.169	-.115	-.012	.053	.130	.181	.253	.301	.346	.388
.050	-.491	-.494	-.424	-.338	-.279	-.181	-.120	-.049	-.003	.062	.107	.148	.188
.100	-.463	-.456	-.430	-.396	-.354	-.273	-.223	-.164	-.125	-.073	-.035	.001	.036
.200	-.554	-.558	-.520	-.450	-.424	-.366	-.322	-.275	-.244	-.200	-.170	-.138	-.110
.300	-.579	-.581	-.546	-.499	-.490	-.454	-.410	-.360	-.330	-.288	-.259	-.232	-.206
.400	-.629	-.620	-.580	-.576	-.519	-.482	-.458	-.411	-.382	-.344	-.319	-.294	-.270
.500	-.678	-.687	-.668	-.598	-.571	-.492	-.463	-.429	-.410	-.380	-.359	-.336	-.316
.600	-.768	-.766	-.717	-.665	-.615	-.571	-.561	-.537	-.510	-.467	-.439	-.415	-.390
.700	-.798	-.800	-.758	-.656	-.562	-.558	-.463	-.452	-.439	-.420	-.405	-.393	-.376
.800	-.219	-.202	-.209	-.232	-.270	-.294	-.304	-.317	-.327	-.328	-.327	-.327	-.319
.900	-.083	-.031	-.021	-.032	-.054	-.071	-.078	-.091	-.105	-.111	-.115	-.125	-.126
.950	-.029	.041	.069	.082	.074	.066	.063	.055	.047	.041	.034	.026	.023
Lower surface													
.0375	.238	.211	.155	.091	.029	-.081	-.150	-.266	-.407	-.669	-.844	-.994	-1.113
.075	.175	.151	.109	.064	.017	-.057	-.095	-.144	-.190	-.228	-.242	-.360	-.590
.150	.138	.118	.086	.055	.022	-.031	-.054	-.095	-.129	-.165	-.192	-.207	-.213
.250	.097	.083	.058	.038	.012	-.028	-.045	-.073	-.096	-.121	-.142	-.160	-.172
.350	.062	.049	.031	.017	-.004	-.035	-.047	-.068	-.084	-.102	-.120	-.132	-.142
.450	.035	.027	.014	.003	-.011	-.037	-.045	-.061	-.073	-.086	-.100	-.110	-.117
.550	-.015	-.019	-.028	-.032	-.044	-.062	-.066	-.076	-.085	-.092	-.103	-.110	-.115
.650	-.038	-.035	-.038	-.037	-.043	-.057	-.058	-.063	-.069	-.075	-.081	-.086	-.088
.750	-.057	-.047	-.040	-.035	-.038	-.045	-.043	-.044	-.048	-.051	-.054	-.055	-.057
.850	a-.021	a-.020	a-.010	.013	.012	.010	.014	.019	.016	.016	.012	.013	.012
.925	.002	.032	.051	.070	.072	.074	.080	.086	.086	.086	.083	.086	.085
.975	a.018	a.079	a.119	a.140	a.137	a.143	a.138	a.175	a.153	a.148	a.149	a.160	a.145
1.000	a.025	a.107	a.159	a.187	a.175	a.197	a.170	a.239	a.192	a.177	a.180	a.200	a.174

[a]Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(f) M = 0.60; $\beta_{0.75R}$ = 45°.

J	2.158	2.188	2.217	2.251	2.278	2.311	2.350	2.364	2.396	2.428	2.467	2.500	2.521
M_x	.909	.902	.896	.888	.883	.876	.871	.866	.860	.854	.850	.844	.838
α_x'	2.53	2.14	1.76	1.33	.99	.58	.10	−.07	−.46	−.84	−1.29	−1.67	−1.91
$\Delta\beta$	.39	.34	.28	.22	.14	.04	−.08	−.12	−.22	−.32	−.44	−.55	−.61
α_1	1.31	1.26	1.12	1.06	.96	.86	.74	.70	.59	.47	.37	.14	.03
c_n	.4216	.4035	.3606	.3432	.3097	.2774	.2387	.2268	.1916	.1529	.1181	.0458	.0097
c_m	−.0828	−.0796	−.0773	−.0815	−.0875	−.0922	−.0965	−.0937	−.0948	−.1001	−.1003	−.1052	−.1041
c_c	.0183	.0177	.0173	.0172	.0185	.0181	.0190	.0184	.0174	.0179	.0187	.0179	.0175

	c/b	Pressure coefficient, P												
Upper surface	0.000	1.222	1.220	1.217	1.213	1.210	1.206	1.204	1.201	1.198	1.195	1.194	1.191	1.188
	.025	−.106	−.080	−.024	.010	.075	.128	.187	.207	.249	.299	.355	.388	.416
	.050	−.319	−.279	−.207	−.171	−.106	−.054	.001	.019	.056	.105	.157	.190	.215
	.100	−.308	−.298	−.272	−.256	−.209	−.168	−.123	−.108	−.076	−.037	.009	.035	.059
	.200	−.436	−.424	−.380	−.350	−.309	−.287	−.253	−.241	−.213	−.181	−.142	−.120	−.102
	.300	−.476	−.465	−.434	−.418	−.379	−.366	−.349	−.347	−.330	−.295	−.256	−.234	−.215
	.400	−.533	−.523	−.487	−.477	−.462	−.440	−.410	−.392	−.385	−.370	−.345	−.322	−.303
	.500	−.586	−.583	−.572	−.556	−.516	−.504	−.473	−.467	−.450	−.411	−.386	−.369	−.358
	.600	−.671	−.674	−.637	−.623	−.612	−.579	−.567	−.568	−.548	−.519	−.499	−.495	−.488
	.700	−.767	−.739	−.729	−.731	−.708	−.690	−.678	−.662	−.646	−.639	−.627	−.609	−.586
	.800	−.317	−.295	−.314	−.307	−.386	−.442	−.546	−.575	−.556	−.542	−.510	−.412	−.368
	.900	−.230	−.195	−.173	−.150	−.139	−.115	−.070	−.041	−.026	−.037	−.054	−.070	−.085
	.950	−.224	−.182	−.150	−.115	−.086	−.051	.002	.039	.069	.082	.082	.074	.066
Lower surface	.0375	.181	.138	.071	.023	−.068	−.174	−.333	−.417	−.568	−.733	−.853	−.931	−.997
	.075	.134	.102	.053	.021	−.040	−.094	−.121	−.130	−.240	−.526	−.740	−.836	−.906
	.150	.104	.083	.048	.026	−.018	−.061	−.105	−.125	−.147	−.155	−.238	−.447	−.603
	.250	.068	.051	.024	.009	−.024	−.056	−.087	−.101	−.119	−.142	−.156	−.155	−.151
	.350	.032	.023	.001	−.010	−.037	−.062	−.083	−.091	−.103	−.121	−.136	−.141	−.140
	.450	−.001	−.005	−.023	−.031	−.051	−.068	−.083	−.087	−.094	−.104	−.115	−.116	−.117
	.550	−.063	−.070	−.082	−.085	−.098	−.107	−.113	−.113	−.112	−.117	−.121	−.122	−.122
	.650	−.102	−.100	−.106	−.102	−.108	−.108	−.109	−.103	−.097	−.095	−.095	−.092	−.089
	.750	−.149	−.139	−.135	−.123	−.116	−.105	−.098	−.085	−.076	−.068	−.062	−.058	−.056
	.850	−.133	−.122	−.110	−.092	−.072	−.053	−.038	−.021	−.007	.005	.015	.021	.023
	.925	−.132	−.111	−.089	−.058	−.029	−.001	.022	.043	.061	.079	.092	.098	.101
	.975	[a]−.144	[a]−.122	[a]−.082	[a]−.033	[a]0	[a].025	[a].050	[a].072	[a].105	[a].145	[a].169	[a].168	[a].189
	1.000	[a]−.158	[a]−.153	[a]−.091	[a]−.024	[a].012	[a].036	[a].061	[a].081	[a].120	[a].180	[a].210	[a].210	[a].238

[a]Faired value.

CONFIDENTIAL

NACA

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(g) M = 0.65; $\beta_{0.75R}$ = 45°.

	J	2.148	2.168	2.190	2.216	2.240	2.260	2.288	2.310	2.336	2.363	2.390	2.407	2.433
	M_x	.995	.985	.980	.974	.968	.963	.957	.952	.943	.937	.932	.925	.920
	a_x'	2.67	2.39	2.11	1.78	1.47	1.21	.86	.60	.27	-.06	-.39	-.59	-.90
	$\Delta\beta$	.24	.17	.10	.02	-.07	-.13	-.23	-.30	-.39	-.47	-.56	-.60	-.69
	a_1	1.20	1.11	.99	.86	.76	.60	.45	.36	.24	.13	.01	-.06	-.15
	c_n	.3839	.3548	.3161	.2755	.2432	.1939	.1452	.1165	.0761	.0429	.0035	-.0197	-.0487
	c_m	-.1257	-.1182	-.1100	-.1037	-.0939	-.0808	-.0755	-.0694	-.0663	-.0707	-.0711	-.0769	-.0805
	c_c	.0414	.0415	.0402	.0397	.0391	.0345	.0328	.0310	.0306	.0301	.0301	.0286	.0282
	c/b	Pressure coefficient, P												
Upper surface	0.000	1.272	1.266	1.263	1.260	1.256	1.253	1.250	1.248	1.242	1.239	1.236	1.233	1.230
	.025	.123	.134	.160	.186	.208	.231	.260	.285	.321	.342	.365	.382	.407
	.050	-.069	-.052	-.020	.007	.029	.050	.077	.104	.139	.157	.181	.195	.218
	.100	-.109	-.111	-.102	-.092	-.079	-.066	-.043	-.021	.009	.023	.043	.055	.074
	.200	-.245	-.247	-.229	-.209	-.194	-.178	-.161	-.149	-.131	-.120	-.104	-.094	-.078
	.300	-.296	-.298	-.286	-.275	-.266	-.259	-.241	-.225	-.215	-.214	-.208	-.207	-.198
	.400	-.356	-.365	-.352	-.338	-.327	-.324	-.319	-.313	-.295	-.290	-.280	-.266	-.255
	.500	-.413	-.424	-.418	-.418	-.415	-.411	-.388	-.372	-.366	-.362	-.349	-.345	-.334
	.600	-.495	-.508	-.505	-.504	-.489	-.478	-.474	-.471	-.453	-.445	-.441	-.447	-.445
	.700	-.594	-.608	-.581	-.571	-.570	-.576	-.573	-.568	-.553	-.558	-.558	-.557	-.546
	.800	-.655	-.675	-.671	-.670	-.669	-.668	-.660	-.658	-.659	-.662	-.661	-.660	-.654
	.900	-.765	-.793	-.794	-.798	-.742	-.505	-.358	-.263	-.237	-.231	-.219	-.198	-.169
	.950	-.760	-.760	-.626	-.503	-.362	-.308	-.267	-.214	-.193	-.189	-.179	-.162	-.135
Lower surface	.0375	.151	.092	.032	-.035	-.101	-.206	-.306	-.383	-.459	-.510	-.564	-.611	-.654
	.075	.130	.083	.041	.004	-.023	-.062	-.172	-.286	-.400	-.459	-.514	-.560	-.602
	.150	.119	.078	.044	.013	-.016	-.055	-.075	-.055	-.173	-.283	-.402	-.467	-.514
	.250	.090	.053	.024	-.004	-.027	-.060	-.093	-.120	-.136	-.143	-.188	-.280	-.386
	.350	.057	.023	-.001	-.024	-.044	-.068	-.090	-.111	-.133	-.152	-.171	-.188	-.214
	.450	.028	-.004	-.025	-.044	-.060	-.084	-.107	-.125	-.146	-.166	-.185	-.201	-.208
	.550	-.038	-.066	-.083	-.100	-.112	-.131	-.145	-.161	-.182	-.203	-.224	-.240	-.249
	.650	-.094	-.123	-.139	-.155	-.166	-.185	-.201	-.213	-.230	-.249	-.271	-.287	-.296
	.750	-.152	-.181	-.197	-.211	-.220	-.235	-.247	-.254	-.264	-.281	-.298	-.286	-.247
	.850	-.204	-.236	-.250	-.263	-.269.	-.280	-.286	-.275	-.242	-.224	-.193	-.139	-.109
	.925	-.194	-.222	-.234	-.245	-.248	-.252	-.246	-.194	-.148	-.137	-.112	-.083	-.059
	.975	[a]-.195	[a]-.220	[a]-.222	[a]-.218	[a]-.210	[a]-.203	[a]-.195	[a]-.116	[a]-.097	[a]-.097	[a]-.084	[a]-.067	[a]-.040
	1.000	[a]-.198	[a]-.220	[a]-.220	[a]-.205	[a]-.150	[a]-.167	[a]-.164	[a]-.085	[a]-.086	[a]-.090	[a]-.080	[a]-.064	[a]-.035

[a]Faired value.

NACA

CONFIDENTIAL

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(h) $N = 1140$ rpm; $\beta_{0.75R} = 30°$.

J	0.789	0.894	1.034	1.201	1.285	1.405	1.495	1.457	1.357	1.275	1.238	1.109	0.978	0.830
M_x	.423	.432	.442	.458	.465	.477	.488	.489	.474	.467	.469	.455	.431	.423
$\alpha_x{}^2$	11.06	8.86	6.02	2.79	1.23	-.93	-2.49	-1.85	-.07	1.41	2.09	4.55	7.15	10.18
$\Delta\beta$	.81	.72	.56	.35	.23	.06	-.06	-.01	.13	.25	.29	.47	.63	.77
α_i	3.04	2.76	2.22	1.48	1.00	.50	.06	.25	.68	1.01	1.24	1.83	2.37	2.95
c_n	.8466	.7862	.6451	.4404	.2978	.1509	.0174	.0748	.2057	.3023	.3664	.5358	.6807	.8244
c_m	-.0494	-.0216	-.0430	-.0510	-.0528	-.0562	-.0564	-.0580	-.0504	-.0507	-.0520	-.0506	-.0404	-.0280
c_c														

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.046	1.048	1.050	1.054	1.055	1.058	1.061	1.061	1.058	1.056	1.057	1.053	1.048	1.046
.025	-1.274	-1.555	-1.731	-.607	-.204	.172	.443	.333	.028	-.225	-.370	-.853	-2.090	-1.590
.050	-1.187	-1.553	-1.184	-.529	-.244	.037	.252	.166	-.073	-.260	-.365	-.722	-1.543	-1.543
.100	-1.071	-1.481	-.643	-.417	-.225	-.034	.122	.055	-.110	-.238	-.304	-.550	-.973	-1.366
.200	-.875	-.790	-.492	-.338	-.215	-.089	.010	-.032	-.142	-.225	-.261	-.416	-.572	-.841
.300	-.699	-.482	-.421	-.309	-.217	-.128	-.054	-.087	-.168	-.227	-.255	-.368	-.459	-.593
.400	-.533	-.367	-.363	-.287	-.217	-.151	-.095	-.123	-.181	-.225	-.243	-.328	-.382	-.434
.500	-.415	-.289	-.317	-.263	-.212	-.162	-.095	-.141	-.187	-.222	-.227	-.294	-.321	-.335
.600	-.316	-.234	-.285	-.263	-.225	-.191	-.161	-.177	-.211	-.233	-.291	-.279	-.279	-.252
.700	-.229	-.159	-.218	-.210	-.193	-.173	-.158	-.166	-.187	-.199	-.195	-.222	-.205	-.176
.800	-.168	-.084	-.134	-.148	-.144	-.139	-.138	-.143	-.147	-.148	-.139	-.148	-.117	-.108
.900	-.096	.016	.014	.006	-.011	-.019	-.039	-.038	.023	.015	.001	.006	.018	-.035
.950	-.059	.064	.116	.119	.108	.096	.078	.081	.094	.102	.117	.118	.104	.005
Lower surface														
.0375	.877	.805	.672	.429	.195	-.102	-.372	-.246	.012	.200	.306	.548	.743	.848
.075	.723	.655	.532	.335	.163	-.034	-.232	-.154	.028	.160	.243	.426	.592	.691
.150	.584	.519	.419	.269	.146	.013	-.120	-.069	.059	.146	.208	.338	.465	.554
.250	.470	.420	.341	.224	.135	.033	-.059	-.025	.070	.133	.174	.272	.373	.446
.350	.395	.350	.285	.193	.121	.039	-.029	.007	.065	.118	.158	.232	.315	.373
.450	.327	.300	.244	.173	.113	.049	-.008	.011	.070	.110	.147	.209	.270	.312
.550	.265	.248	.207	.142	.094	.044	-.003	.011	.054	.089	.120	.169	.226	.253
.650	.213	.206	.177	.128	.092	.049	.015	.027	.059	.086	.112	.152	.191	.207
.750	.160	.169	.160	.119	.092	.065	.038	.045	.067	.086	.109	.136	.167	.161
.850	.123	.151	.160	.134	.116	.101	.089	.091	.104	.113	.124	.144	.160	.140
.925	.089	.145	.180	.170	.162	.156	.152	.150	.152	.157	.169	.169	.170	.116
.975	a.062	a.150	a.210	a.227	a.225	a.220	a.229	a.207	a.181	a.190	a.221	a.210	a.208	a.100
1.000	a.047	a.170	.230	a.268	a.264	.250	.290	.239	a.190	.207	a.258	a.240	a.229	a.099

aFaired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(1) N = 1350 rpm; $\beta_{0.75R} = 30°$.

J	0.884	0.993	1.118	1.252	1.338	1.437	1.490	1.406	1.306	1.221	1.170	1.059	0.954
M_x	.517	.532	.547	.554	.566	.575	.581	.574	.558	.557	.546	.538	.523
α_x'	9.06	6.84	4.38	1.84	.27	−1.49	−2.40	−.95	.84	2.41	3.38	5.53	7.63
$\Delta\beta$	1.07	.92	.68	.39	.19	−.05	−.17	.03	.27	.46	.58	.80	.98
α_1	2.92	2.51	1.88	1.21	.75	.37	.10	.47	.94	1.43	1.64	2.22	2.67
c_n	.8279	.7272	.5504	.3576	.2245	.1118	.0313	.1406	.2802	.4177	.4839	.6485	.7673
c_m	−.0277	−.0371	−.0540	−.0507	−.0569	−.0566	−.0607	−.0580	−.0534	−.0513	−.0498	−.0456	−.0223
c_c													

	c/b					Pressure coefficient, P							
Upper surface	0.000	1.068	1.072	1.077	1.079	1.082	1.085	1.087	1.085	1.080	1.080	1.076	1.074	1.070
	.025	−1.741	−1.873	−.999	−.452	−.088	.201	.358	.125	−.235	−.624	−.859	−1.699	−1.965
	.050	−1.708	−1.747	−.887	−.462	−.192	.026	.168	−.025	−.303	−.582	−.755	−1.103	−1.724
	.100	−1.570	−1.314	−.705	−.420	−.233	−.068	.030	−.112	−.311	−.494	−.619	−.819	−1.461
	.200	−1.018	−.687	−.556	−.378	−.266	−.156	−.088	−.186	−.315	−.436	−.513	−.637	−.844
	.300	−.702	−.567	−.499	−.372	−.286	−.203	−.150	−.227	−.323	−.413	−.476	−.557	−.611
	.400	−.548	−.503	−.456	−.370	−.298	−.241	−.198	−.257	−.333	−.397	−.448	−.498	−.501
	.500	−.452	−.440	−.417	−.337	−.306	−.258	−.228	−.273	−.327	−.375	−.415	−.445	−.432
	.600	−.373	−.399	−.400	−.363	−.332	−.296	−.274	−.306	−.347	−.377	−.409	−.418	−.376
	.700	−.296	−.317	−.334	−.320	−.306	−.280	−.266	−.288	−.311	−.327	−.352	−.347	−.295
	.800	−.220	−.228	−.254	−.256	−.258	−.249	−.241	−.247	−.260	−.261	−.278	−.255	−.205
	.900	−.134	−.086	−.090	−.104	−.120	−.123	−.125	−.122	−.117	−.105	−.120	−.097	−.089
	.950	−.093	−.004	.016	.017	.004	−.001	−.003	0	.008	.017	−.004	.005	−.022
Lower surface	.0375	.718	.632	.470	.176	−.069	−.300	−.474	−.263	.036	.262	.352	.559	.676
	.075	.563	.486	.343	.119	−.055	−.225	−.342	−.170	.016	.178	.244	.417	.523
	.150	.425	.364	.250	.086	−.033	−.147	−.220	−.108	.016	.128	.167	.306	.393
	.250	.318	.269	.178	.059	−.029	−.107	−.156	−.083	.008	.089	.116	.222	.293
	.350	.203	.206	.134	.037	−.029	−.090	−.125	−.073	−.004	.061	.079	.167	.225
	.450	.189	.162	.105	.021	−.029	−.076	−.102	−.059	−.011	.043	.051	.130	.176
	.550	.129	.116	.071	.001	−.039	−.078	−.096	−.067	−.025	.017	.023	.089	.124
	.650	.084	.084	.047	−.007	−.037	−.062	−.076	−.053	−.029	.002	.004	.063	.086
	.750	.045	.056	.036	−.007	−.029	−.044	−.049	−.037	−.021	0	−.002	.045	.052
	.850	.025	.056	.047	.013	.008	.001	.001	.004	.020	.019	.015	.054	.046
	.925	.009	.065	.073	.061	.060	.064	.067	.062	.018	.059	.044	.073	.046
	.975	a.010	a.078	a.112	a.112	a.113	a.120	a.132	a.118	a.063	a.103	a.080	a.110	a.050
	1.000	a.012	a.084	a.139	a.151	a.145	a.154	a.173	a.149	b.077	a.129	a.100	a.129	a.050

[a] Faired value.

[b] Lower-surface value only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(j) N = 1500 rpm; $\beta_{0.75R}$ = 30°.

J	.820	.873	.981	1.096	1.211	1.294	1.380	1.471	1.412	1.339	1.263	1.167	1.044	.928	.846
M_x	.565	.575	.583	.603	.615	.622	.635	.645	.634	.627	.620	.607	.597	.587	.576
$\alpha_x{}'$	10.40	9.29	7.08	4.80	2.60	1.06	-.49	-2.08	-1.05	.25	1.63	3.43	5.82	8.16	9.85
$\Delta\beta$	1.32	1.32	1.17	.86	.53	.28	.03	-.25	-.07	.14	.37	.66	1.00	1.27	1.33
α_i	2.99	2.98	2.60	2.12	1.50	1.02	.59	.14	.40	.80	1.23	1.76	2.42	2.78	2.98
c_n	.8362	.8432	.7461	.6186	.4435	.3017	.1775	.0419	.1208	.2380	.3645	.5198	.7020	.7934	.8399
c_m	-.0415	-.0261	-.0332	-.0498	-.0541	-.0553	-.0592	-.0605	-.0619	-.0591	-.0552	-.0521	-.0316	-.0213	-.0310
c_c															

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.082	1.085	1.087	1.093	1.097	1.100	1.105	1.108	1.104	1.102	1.100	1.095	1.092	1.088	1.085
.025	-1.538	-1.684	-2.077	-1.047	-.568	-.190	.130	.399	.254	-.010	-.337	-.821	-2.210	-1.699	-1.682
.050	-1.442	-1.634	-1.647	-.956	-.540	-.263	-.015	.206	.084	-.124	-.373	-.725	-1.010	-1.650	-1.628
.100	-1.278	-1.498	-1.195	-.731	-.444	-.267	-.090	.074	-.018	-.168	-.342	-.570	-.841	-1.488	-1.478
.200	-.937	-1.000	-.691	-.549	-.383	-.267	-.156	-.044	-.109	-.207	-.315	-.453	-.619	-.894	-.961
.300	-.741	-.660	-.543	-.477	-.364	-.281	-.197	-.111	-.162	-.235	-.317	-.411	-.526	-.581	-.662
.400	-.558	-.477	-.454	-.425	-.343	-.284	-.220	-.159	-.197	-.249	-.313	-.378	-.452	-.447	-.495
.500	-.447	-.375	-.384	-.375	-.321	-.281	-.234	-.188	-.217	-.255	-.301	-.343	-.389	-.363	-.402
.600	-.346	-.293	-.331	-.349	-.322	-.300	-.266	-.236	-.258	-.281	-.313	-.335	-.350	-.294	-.316
.700	-.266	-.214	-.242	-.276	-.269	-.260	-.260	-.223	-.238	-.248	-.266	-.273	-.264	-.209	-.238
.800	-.201	-.145	-.142	-.180	-.193	-.200	-.191	-.188	-.194	-.197	-.202	-.190	-.155	-.123	-.173
.900	-.129	-.068	0	-.004	-.021	-.043	-.044	-.053	-.052	-.044	-.039	-.016	.018	-.021	-.099
.950	-.092	-.029	.075	.101	.100	.088	.083	.074	.075	.086	.089	.103	.096	.031	-.064
Lower surface															
.0375	.831	.807	.735	.588	.346	.126	-.129	-.389	-.238	-.003	.216	.463	.671	.768	.817
.075	.678	.655	.582	.455	.264	.101	-.060	-.259	-.151	.014	.165	.354	.527	.617	.665
.150	.536	.513	.453	.351	.212	.098	-.015	-.148	-.079	.042	.140	.278	.407	.485	.523
.250	.423	.405	.357	.277	.173	.089	.003	-.089	-.042	.042	.119	.224	.321	.383	.413
.350	.343	.332	.294	.229	.145	.074	.009	-.061	-.025	.042	.099	.185	.264	.314	.335
.450	.280	.286	.247	.198	.126	.069	.019	-.039	-.009	.044	.089	.160	.224	.259	.274
.550	.214	.213	.194	.152	.095	.047	.009	-.034	-.015	.028	.063	.122	.175	.203	.211
.650	.160	.164	.159	.130	.086	.047	.017	-.018	-.003	.032	.057	.107	.145	.159	.162
.750	.106	.117	.130	.110	.076	.049	.029	.009	.018	.038	.056	.093	.118	.123	.111
.850	.064	.085	.119	.113	.096	.081	.070	.059	.063	.081	.084	.107	.111	.102	.075
.925	.045	.073	.130	.139	.137	.131	.130	.126	.126	.134	.130	.143	.126	.102	.060
.975	[a]-.060	[a].058	[a].141	[a].172	[a].188	[a].184	[a].183	[a].195	[a].193	[a].209	[a].190	[a].190	[a].168	[a].110	[a].092
1.000	[a]-.023	[a].048	[a].155	[a].203	[a].238	[a].220	[a].228	[a].235	[a].233	[a].255	[a].229	[a].225	[a].194	[a].120	[a].089

[a] Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(k) N = 1600 rpm; $\beta_{0.75R} = 30°$.

J	0.830	0.897	0.990	1.043	1.119	1.196	1.273	1.355	1.440	1.488	1.400	1.311	1.232	1.159	1.098	1.029	0.940	0.869
M_x	.616	.614	.632	.642	.645	.652	.664	.674	.684	.690	.674	.665	.661	.646	.636	.634	.627	.619
α_x'	10.19	8.79	6.90	5.85	4.35	2.88	1.45	-.04	-1.54	-2.37	-.84	.75	2.21	3.59	4.76	6.12	7.91	9.38
$\Delta\beta$	1.96	1.77	1.48	1.31	1.05	.78	.49	.19	-.12	-.30	.03	.36	.65	.91	1.13	1.36	1.64	1.84
α_i	3.08	3.01	2.78	2.44	2.03	1.68	1.20	.76	.32	.11	.55	1.04	1.45	1.85	2.14	2.59	2.97	3.03
c_n	.8677	.8529	.7983	.7067	.5885	.4931	.3562	.2291	.0950	.0339	.1652	.3083	.4304	.5449	.6292	.7498	.8496	.8575
c_m	-.0432	.0244	-.0244	-.0359	-.0528	-.0558	-.0590	-.0637	-.0652	-.0652	-.0640	-.0603	-.0551	-.0501	-.0441	-.0331	-.0164	-.0269
c_c																		
c/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.098	1.097	1.103	1.107	1.108	1.110	1.115	1.119	1.123	1.125	1.119	1.116	1.114	1.108	1.105	1.104	1.102	1.099
.025	-1.792	-1.937	-2.351	-2.054	-1.012	-.807	-.359	-.034	.264	.387	.115	-.226	-.574	-.954	-1.692	-2.232	-2.434	-1.823
.050	-1.699	-1.793	-2.204	-1.928	-1.042	-.742	-.415	-.160	.084	.192	-.041	-.309	-.581	-.861	-1.009	-2.100	-2.194	-1.576
.100	-1.458	-1.536	-1.175	-.832	-.792	-.611	-.396	-.218	-.039	.044	-.132	-.325	-.504	-.686	-.834	-.935	-1.321	-1.576
.200	-1.003	-1.051	-.748	-.685	-.619	-.514	-.388	-.270	-.148	-.085	-.211	-.340	-.454	-.558	-.641	-.699	-.914	-1.071
.300	-.755	-.765	-.641	-.603	-.554	-.482	-.394	-.305	-.210	-.163	-.259	-.356	-.441	-.512	-.567	-.616	-.704	-.789
.400	-.614	-.579	-.550	-.536	-.506	-.455	-.394	-.325	-.257	-.217	-.290	-.367	-.428	-.476	-.508	-.543	-.563	-.611
.500	-.529	-.461	-.470	-.471	-.456	-.422	-.384	-.333	-.282	-.254	-.308	-.362	-.407	-.438	-.454	-.473	-.466	-.504
.600	-.439	-.375	-.413	-.431	-.434	-.416	-.399	-.362	-.329	-.304	-.344	-.381	-.409	-.425	-.426	-.425	-.387	-.406
.700	-.366	-.293	-.317	-.342	-.360	-.354	-.350	-.330	-.311	-.297	-.319	-.342	-.355	-.359	-.346	-.336	-.293	-.322
.800	-.305	-.210	-.207	-.230	-.259	-.267	-.277	-.267	-.268	-.262	-.270	-.277	-.276	-.268	-.245	-.221	-.201	-.246
.900	-.241	-.126	-.055	-.055	-.074	-.085	-.102	-.110	-.118	-.118	-.110	-.109	-.096	-.083	-.060	-.085	-.090	-.166
.950	-.213	-.088	.015	.032	.040	.040	.029	.019	.018	.019	.021	.027	.032	.037	.046	.033	-.041	-.130
Lower surface																		
.0375	.750	.727	.670	.584	.483	.341	.123	-.104	-.336	-.486	-.248	.040	.239	.403	.536	.635	.704	.734
.075	.595	.574	.522	.444	.355	.244	.079	-.073	-.268	-.353	-.152	.023	.166	.290	.401	.488	.552	.583
.150	.454	.438	.391	.331	.262	.179	.060	-.040	-.173	-.231	-.098	.021	.121	.211	.297	.367	.418	.441
.250	.340	.329	.295	.246	.195	.133	.040	-.029	-.121	-.164	-.072	.016	.082	.156	.222	.274	.313	.330
.350	.261	.259	.232	.190	.146	.094	.022	-.036	-.101	-.132	-.065	.002	.058	.111	.169	.213	.241	.254
.450	.198	.203	.180	.150	.116	.074	.016	-.029	-.082	-.103	-.053	.002	.043	.091	.135	.168	.189	.196
.550	.134	.139	.131	.102	.070	.040	-.011	-.043	-.082	-.097	-.061	-.023	.010	.050	.092	.120	.131	.096
.650	.078	.091	.089	.071	.048	.023	-.013	-.040	-.068	-.077	-.050	-.023	.002	.032	.066	.084	.088	.080
.750	.021	.049	.062	.045	.032	.015	-.013	-.028	-.041	-.045	-.034	-.017	-.003	.018	.046	.059	.049	.033
.850	-.029	.017	.046	.038	.040	.034	.014	.014	.010	.012	.015	.016	.023	.032	.047	.047	.028	-.003
.925	-.055	.008	.062	.057	.067	.069	.067	.071	.076	.081	.076	.070	.064	.070	.073	.068	.028	-.015
.975	[a]-.093	[a]-.012	[a].079	[a].090	[a].091	[a].132	[a].135	[a].114	[a].154	[a].152	[a].145	[a].142	[a].115	[a].120	[a].110	[a].104	[a].030	[a]-.015
1.000	[a]-.142	[a]-.030	[a].093	[a].111	[a].110	[a].170	[a].188	[a].137	[a].205	[a].200	[a].189	[a].198	[a].152	[a].155	[a].135	[a].131	[a].032	[a]-.010

[a]Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.– PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLOR BLADE SECTION (x = 0.78) – Continued

(l) N = 1800 rpm; $\beta_{0.75R} = 30°$.

J	0.880	0.931	0.998	1.062	1.168	1.236	1.296	1.378	1.449	1.469	1.404	1.347	1.269	1.198	1.110	1.029	0.958	0.904
M_x	.695	.704	.712	.721	.728	.738	.748	.757	.768	.770	.762	.751	.743	.737	.721	.713	.707	.703
α_x'	9.15	8.10	6.74	5.47	3.42	2.14	1.03	-.45	-1.70	-2.04	-.92	.10	1.52	2.80	4.53	6.12	7.55	8.65
$\Delta\beta$	2.42	2.16	1.82	1.50	.96	.61	.30	-.13	-.50	-.61	-.27	-.03	.44	.80	1.25	1.66	2.02	2.30
α_i	3.22	3.22	3.12	2.82	1.99	1.57	1.16	.69	.26	.14	.55	.83	1.32	1.76	2.31	2.95	3.18	3.22
c_n	.9195	.9293	.9099	.8266	.5889	.4655	.3484	.2057	.0787	.0413	.1672	.2475	.3953	.5228	.6804	.8656	.9240	.9210
c_m	-.0277	-.0126	-.0287	-.0352	-.0512	-.0540	-.0643	-.0714	-.0780	-.0793	-.0728	-.0720	-.0610	-.0573	-.0478	-.0328	-.0229	-.0255
c_c																		

c/b									Pressure coefficient, P									
Upper surface																		
0.000	1.127	1.131	1.134	1.137	1.140	1.144	1.149	1.152	1.157	1.158	1.154	1.150	1.146	1.144	1.138	1.134	1.132	1.131
.025	-2.065	-1.945	-1.759	-1.563	-.897	-.569	-.235	.103	.332	.383	.197	-.008	-.382	-.793	-1.321	-1.679	-1.887	-2.065
.050	-1.955	-1.874	-1.723	-1.565	-1.081	-.653	-.353	-.068	.136	.183	.014	-.161	-.480	-.949	-1.319	-1.665	-1.832	-1.970
.100	-1.645	-1.765	-1.626	-1.462	-.928	-.574	-.380	-.168	-.008	.032	-.105	-.241	-.467	-.706	-1.224	-1.570	-1.731	-1.753
.200	-1.093	-1.638	-1.505	-1.363	-.638	-.523	-.404	-.261	-.144	-.114	-.218	-.314	-.458	-.594	-.637	-1.454	-1.607	-1.153
.300	-.832	-.852	-.934	-.585	-.596	-.519	-.431	-.325	-.233	-.207	-.290	-.365	-.475	-.563	-.597	-.694	-.873	-.814
.400	-.622	-.568	-.515	-.503	-.548	-.501	-.445	-.367	-.297	-.277	-.341	-.397	-.475	-.529	-.559	-.490	-.567	-.574
.500	-.511	-.403	-.424	-.473	-.497	-.466	-.432	-.383	-.335	-.320	-.366	-.404	-.451	-.485	-.501	-.460	-.412	-.476
.600	-.410	-.355	-.409	-.455	-.482	-.470	-.461	-.435	-.407	-.397	-.426	-.448	-.468	-.478	-.480	-.444	-.383	-.388
.700	-.321	-.273	-.334	-.367	-.394	-.392	-.396	-.390	-.382	-.380	-.392	-.397	-.397	-.395	-.392	-.362	-.312	-.306
.800	-.248	-.184	-.230	-.254	-.278	-.288	-.301	-.314	-.319	-.320	-.319	-.315	-.299	-.285	-.275	-.252	-.220	-.233
.900	-.177	-.067	-.061	-.062	-.072	-.082	-.098	-.117	-.127	-.129	-.121	-.116	-.093	-.079	-.074	-.067	-.066	-.168
.950	-.147	-.013	.038	.041	.043	.048	.038	.032	.022	.020	.026	.028	.042	.044	.040	.034	.028	-.139
Lower surface																		
.0375	.745	.707	.652	.586	.393	.237	.054	-.245	-1.003	-1.118	-.410	-.138	.139	.327	.500	.616	.682	.749
.075	.596	.560	.511	.452	.287	.165	.029	-.159	-.293	-.467	-.235	-.100	.090	.232	.374	.477	.540	.600
.150	.460	.431	.392	.343	.210	.120	.024	-.106	-.232	-.252	-.157	-.064	.065	.167	.277	.362	.412	.467
.250	.353	.330	.299	.258	.150	.081	.012	-.077	-.167	-.192	-.112	-.052	.039	.115	.204	.272	.313	.357
.350	.276	.258	.235	.199	.108	.051	-.001	-.073	-.140	-.156	-.100	-.058	.018	.081	.153	a.227	.246	.280
.450	.221	.204	.187	.155	.077	.029	-.005	-.062	-.112	-.125	-.080	-.051	.004	.054	.114	.167	.192	.221
.550	.150	.146	.135	.107	.040	.001	-.033	-.074	-.112	-.120	-.089	-.068	-.021	.019	.070	.115	.140	.156
.650	.090	.101	.099	.076	.018	-.013	-.034	-.062	-.088	-.094	-.075	-.062	-.028	.002	.044	.081	.099	.103
.750	.043	.062	.073	.056	.008	-.014	-.029	-.044	-.058	-.059	-.049	-.044	-.026	-.005	.029	.086	.069	.051
.850	.015	.054	.083	.068	.034	.013	.008	.008	.005	.006	.010	.005	.007	.021	.048	.097	.070	.023
.925	-.013	.052	.102	.091	.063	.060	.066	.076	.079	.081	.078	.069	.061	.059	.078	.093	.088	-.006
.975	a-.060	a.047	a.122	a.135	a.088	a.132	a.135	a.143	a.130	a.132	a.147	a.139	a.134	a.120	a.131	a.130	a.108	a-.054
1.000	a-.088	a.040	a.140	a.167	b.105	a.185	a.182	a.187	a.157	a.156	a.186	a.185	a.187	a.160	a.170	a.161	a.120	a-.085

[a]Faired value.

[b]Lower-surface value only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(m) N = 2000 rpm; $\beta_{0.75R}$ = 30°.

J	1.009	1.068	1.132	1.190	1.250	1.314	1.385	1.433	1.407	1.342	1.283	1.224	1.166	1.099	1.040
M_x	.789	.803	.809	.817	.822	.834	.846	.847	.847	.831	.825	.819	.808	.797	.795
$\alpha_x{}'$	6.46	5.35	4.10	3.00	1.87	.70	-.58	-1.45	-.96	.19	1.26	2.36	3.45	4.74	5.90
$\Delta\beta$	1.76	1.53	1.27	.98	.63	.19	-.32	-.69	-.48	-.01	.41	.79	1.11	1.41	1.64
α_1	3.27	2.90	2.47	1.97	1.55	1.03	.54	.13	.35	.81	1.33	1.71	2.33	2.65	3.09
c_n	.9529	.8479	.7249	.5825	.4603	.3069	.1629	.0400	.1058	.2408	.3950	.5072	.6876	.7754	.9025
c_m	-.0754	-.0676	-.0642	-.0666	-.0777	-.0768	-.0961	-.1001	-.1005	-.0878	-.0797	-.0724	-.0708	-.0641	-.0690
c_c	-.0243	-.0188	-.0118	-.0046	.0041	.0105	.0180	.0208	.0191	.0141	.0074	-.0004	-.0096	-.0152	-.0228
c/b	Pressure coefficient, P														
Upper surface															
0.000	1.165	1.171	1.175	1.178	1.180	1.185	1.191	1.192	1.192	1.184	1.182	1.179	1.174	1.169	1.168
.025	-1.217	-1.000	-.666	-.514	-.273	.013	.270	.391	.328	.135	-.133	-.380	-.654	-.802	-1.129
.050	-1.240	-1.046	-.855	-.705	-.452	-.155	.081	.196	.137	-.045	-.293	-.591	-.831	-.909	-1.165
.100	-1.178	-1.027	-.863	-.677	-.449	-.242	-.049	.051	-.002	-.155	-.354	-.507	-.814	-.931	-1.138
.200	-1.165	-1.048	-.901	-.699	-.486	-.340	-.187	-.102	-.148	-.252	-.371	-.480	-.864	-.978	-1.127
.300	-1.173	-1.028	-.912	-.700	-.509	-.422	-.291	-.210	-.252	-.342	-.428	-.536	-.834	-1.003	-1.116
.400	-1.169	-1.030	-.936	-.638	-.599	-.458	-.375	-.303	-.342	-.428	-.558	-.632	-.701	-.978	-1.116
.500	-1.146	-1.053	-.900	-.691	-.581	-.491	-.407	-.347	-.379	-.458	-.576	-.622	-.671	-.795	-1.116
.600	-.597	-.601	-.590	-.740	-.650	-.603	-.507	-.477	-.497	-.626	-.665	-.716	-.549	-.403	-.557
.700	-.383	-.331	-.351	-.451	-.708	-.682	-.533	-.620	-.593	-.356	-.265	-.245	-.235	-.217	-.331
.800	-.215	-.198	-.231	-.226	-.245	-.287	-.049	-.057	-.065	-.056	-.048	-.033	-.024	-.029	-.201
.900	-.042	-.028	-.022	-.024	-.034	-.049	-.057	-.065	-.062	-.056	-.048	-.033	-.024	-.029	-.033
.950	.053	.065	.072	.072	.074	.073	.070	.068	.070	.068	.069	.072	.079	.071	.065
Lower surface															
.0375	.627	.549	.447	.319	.163	-.077	-.677	-.882	-.812	-.255	.049	.229	.406	.496	.589
.075	.494	.425	.340	.235	.112	-.057	-.218	-.798	-.668	-.151	.029	.161	.306	.378	.459
.150	.385	.326	.257	.175	.083	-.035	-.193	-.387	-.210	-.113	.023	.120	.228	.287	.353
.250	.297	.248	.191	.126	.054	-.031	-.156	-.218	-.191	-.091	.008	.081	.165	.214	.270
.350	.230	.189	.141	.087	.028	-.045	-.142	-.210	-.175	-.091	-.011	.050	.118	.160	.206
.450	.183	.147	.105	.058	.010	-.047	-.121	-.177	-.144	-.082	-.023	.031	.083	.121	.160
.550	.124	.092	.057	.015	-.028	-.076	-.130	-.167	-.146	-.105	-.055	-.011	.039	.071	.104
.650	.085	.061	.028	-.005	-.040	-.076	-.115	-.130	-.123	-.098	-.060	-.025	.012	.041	.069
.750	.053	.032	.011	-.015	-.041	-.064	-.086	-.095	-.090	-.075	-.058	-.032	-.001	.021	.042
.850	.048	.034	.024	.006	-.005	-.009	-.016	-.018	-.015	-.014	-.012	0	.023	.031	.045
.925	.082	.074	.064	.054	.053	.061	.064	.064	.065	.060	.052	.054	.068	.071	.080
.975	[a].110	[a].132	[a].110	[a].112	[a].130	[a].115	[a].154	[a].128	[a].090	[a].122	[a].112	[a].125	[a].136	[a].128	[a].110
1.000	[a].139	[a].180	[a].140	[a].161	[a].187	[a].145	[a].203	[a].159	[a].150	[a].160	[a].142	[a].162	[a].167	[a].170	[a].136

[a]Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(n) N = 2160 rpm; $\beta_{0.75R}$ = 30°.

	J	1.075	1.146	1.227	1.294	1.353	1.413	1.379	1.323	1.266	1.202	1.115
	M_x	.869	.878	.889	.899	.904	.917	.907	.898	.893	.879	.873
	$a_x{'}$	5.21	3.84	2.30	1.06	-.01	-1.07	-.47	.54	1.58	2.77	4.43
	$\Delta\beta$	1.28	.90	.48	.14	-.16	-.46	-.39	-.01	.28	.60	1.06
	α_i	2.65	2.21	1.48	.93	.33	-.26	.16	.68	1.22	1.72	1.84
	c_n	.7774	.6544	.4399	.2873	.0981	-.0777	.0474	.2041	.3624	.5112	.7376
	c_m	-.1081	-.1073	-.0875	-.0926	-.0826	-.0613	-.0736	-.0856	-.0905	-.0877	-.1122
	c_c	.0059	.0122	.0179	.0258	a.0273	.0275	.0267	a.0269	.0227	a.0151	.0096
	c/b	Pressure coefficient, P										
Upper surface	0.000	1.203	1.207	1.213	1.218	1.221	1.228	1.222	1.218	1.215	1.208	1.205
	.025	-.519	-.382	-.121	.108	.293	.414	.347	.204	.005	-.223	-.484
	.050	-.710	-.563	-.329	-.072	.108	.227	.162	.022	-.172	-.436	-.648
	.100	-.743	-.567	-.320	-.171	-.014	.090	.033	-.091	-.249	-.422	-.667
	.200	-.807	-.635	-.441	-.264	-.148	-.057	-.106	-.215	-.340	-.506	-.731
	.300	-.834	-.675	-.470	-.327	-.245	-.172	-.217	-.291	-.390	-.535	-.761
	.400	-.864	-.715	-.530	-.421	-.298	-.239	-.268	-.367	-.453	-.588	-.804
	.500	-.893	-.736	-.583	-.471	-.367	-.307	-.336	-.430	-.516	-.637	-.835
	.600	-.926	-.799	-.658	-.566	-.474	-.409	-.447	-.506	-.594	-.709	-.887
	.700	-.475	-.901	-.735	-.654	-.573	-.508	-.540	-.623	-.704	-.758	-.690
	.800	-.365	-.346	-.435	-.740	-.672	-.627	-.650	-.725	-.652	-.337	-.365
	.900	-.330	-.281	-.215	-.203	-.162	-.147	-.154	-.195	-.197	-.215	-.301
	.950	-.315	-.251	-.191	-.176	-.128	-.097	-.111	-.162	-.171	-.191	-.270
Lower surface	.0375	.507	.358	.159	-.078	-.526	-.661	-.593	-.267	.040	.245	.439
	.075	.396	.270	.114	-.048	-.402	-.609	-.532	-.105	.027	.181	.336
	.150	.305	.206	.086	-.036	-.143	-.519	-.171	-.103	.020	.135	.257
	.250	.231	.148	.053	-.045	-.158	-.269	-.182	-.096	0	.091	.190
	.350	.171	.101	.019	-.065	-.154	-.213	-.180	-.106	-.025	.052	.137
	.450	.125	.062	-.007	-.078	-.152	-.222	-.189	-.114	-.041	.020	.093
	.550	.062	.027	-.059	-.123	-.186	-.263	-.219	-.160	-.093	-.034	.034
	.650	.012	-.038	-.095	-.150	-.206	-.308	-.244	-.180	-.121	-.071	-.010
	.750	-.040	-.082	-.128	-.175	-.183	-.316	-.213	-.191	-.151	-.107	-.055
	.850	-.070	-.090	-.120	-.147	-.130	-.181	-.116	-.151	-.128	-.103	-.068
	.925	-.087	-.084	-.100	-.119	-.094	-.077	-.073	-.118	-.101	-.086	-.073
	.975	a-.126	a-.072	a-.071	a-.083	a-.044	a.005	a-.005	a-.075	a-.067	a-.069	a-.051
	1.000	a-.189	a-.069	a-.053	a-.062	a-.014	a.045	a.036	a-.051	a-.048	a-.042	a-.039

aFaired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(o) N = 1350 rpm; $\beta_{0.75R}$ = 50°.

J	2.283	2.435	2.582	2.755	2.865	2.996	3.057	2.948	2.823	2.688	2.506	2.382
M_x	.685	.709	.729	.754	.774	.798	.806	.787	.763	.742	.721	.693
α_x	5.92	4.08	2.40	.55	-.56	-1.82	-2.38	-1.37	-.14	1.25	3.26	4.71
$\Delta\beta$	.81	.47	.12	-.30	-.55	-.84	-.96	-.73	-.45	-.14	.31	.59
α_i	2.39	1.93	1.51	.94	.61	.24	-.03	.41	.78	1.16	1.60	2.23
c_n	.7738	.6269	.4933	.3064	.2010	.0774	-.0110	.1355	.2560	.3789	.5179	.7246
c_m	-.0179	-.0240	-.0276	-.0359	-.0378	-.0442	-.0511	-.0428	-.0383	-.0308	-.0260	-.0195
c_c												

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.123	1.133	1.141	1.151	1.159	1.170	1.174	1.165	1.155	1.146	1.138	1.127
.025	-1.877	-1.171	-.645	-.100	.156	.361	.443	.289	.041	-.307	-.839	-1.582
.050	-1.853	-1.205	-.731	-.248	-.025	.163	.243	.095	-.126	-.422	-.970	-1.579
.100	-1.724	-.990	-.618	-.312	-.146	.008	.078	-.050	-.223	-.436	-.706	-1.323
.200	-.740	-.650	-.540	-.358	-.252	-.139	-.082	-.181	-.302	-.432	-.587	-.627
.300	-.551	-.600	-.526	-.403	-.325	-.237	-.191	-.272	-.362	-.452	-.551	-.605
.400	-.529	-.540	-.493	-.417	-.366	-.304	-.268	-.327	-.389	-.448	-.507	-.545
.500	-.493	-.494	-.465	-.420	-.390	-.350	-.326	-.367	-.404	-.440	-.473	-.499
.600	-.464	-.473	-.465	-.454	-.447	-.439	-.437	-.442	-.450	-.460	-.463	-.474
.700	-.378	-.388	-.388	-.400	-.400	-.406	-.414	-.408	-.404	-.397	-.385	-.389
.800	-.265	-.275	-.283	-.316	-.335	-.336	-.342	-.344	-.331	-.298	-.279	-.278
.900	-.081	-.076	-.080	-.124	-.129	-.131	-.148	-.150	-.129	-.096	-.082	-.084
.950	.030	.041	.048	.023	.012	.013	.021	.007	.020	.045	.039	.031
Lower surface												
.0375	.610	.467	.281	-.031	-.330	-.990	-1.182	-.808	-.164	.109	.349	.531
.075	.473	.347	.198	-.025	-.174	-.610	-1.042	-.230	-.108	.072	.253	.403
.150	.356	.256	.144	-.009	-.115	-.199	-.427	-.186	-.065	.054	.183	.301
.250	.267	.189	.102	-.011	-.088	-.160	-.151	-.140	-.049	.034	.130	.222
.350	.207	.139	.069	-.017	-.078	-.135	-.141	-.117	-.049	.016	.091	.171
.450	.164	.105	.046	-.023	-.069	-.111	-.120	-.098	-.045	.001	.062	.130
.550	.114	.064	.014	-.042	-.079	-.110	-.118	-.101	-.064	-.022	.028	.086
.650	.081	.041	.001	-.037	-.064	-.085	-.088	-.004	-.053	-.026	.010	.060
.750	.057	.024	-.004	-.032	-.046	-.054	-.054	-.050	-.040	-.024	.002	.041
.850	.068	.044	.023	.013	.013	.016	.018	.019	.013	.011	.027	.060
.925	.087	.071	.059	.083	.092	.098	.103	.104	.088	.068	.053	.082
.975	a.106	a.098	a.101	a.156	a.174	a.163	a.195	a.187	a.163	a.144	a.111	a.118
1.000	b.116	b.112	b.127	a.201	a.232	a.196	a.244	a.232	a.212	a.206	a.156	a.155

[a]Faired value.
[b]Lower-surface value only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 8.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) - Continued

(p) N = 1350 rpm; $\beta_{0.75R} = 40°$.

J	1.417	1.502	1.605	1.706	1.827	1.918	2.026	2.146	2.086	1.965	1.871	1.769	1.665	1.567	1.455
M_x	.575	.583	.597	.609	.620	.632	.646	.662	.654	.635	.624	.614	.597	.590	.579
α_x'	8.86	7.39	5.68	4.05	2.19	.85	-.68	-2.31	-1.51	.17	1.54	3.07	4.70	6.30	8.20
$\Delta\beta$	.87	.82	.69	.52	.28	.08	-.15	-.42	-.29	-.02	.19	.39	.59	.74	.85
α_i	2.83	2.64	2.21	1.77	1.30	.91	.51	.05	.30	.72	1.14	1.54	1.96	2.38	2.75
c_n	.8697	.8134	.6819	.5492	.4055	.2852	.1597	.0165	.0945	.2257	.3566	.4793	.6066	.7380	.8467
c_m	-.0222	-.0236	-.0422	-.0494	-.0531	-.0598	-.0647	-.0642	-.0645	-.0612	-.0531	-.0501	-.0462	-.0349	-.0195
c_c'															

Pressure coefficient, P

c/b															
Upper surface															
0.000	1.085	1.087	1.092	1.095	1.100	1.103	1.108	1.114	1.111	1.105	1.101	1.097	1.092	1.090	1.086
.025	-1.756	-2.046	-1.726	-.956	-.537	-.190	.122	.419	.258	-.044	-.394	-.776	-1.102	-2.121	-2.005
.050	-1.703	-1.876	-1.054	-.864	-.547	-.283	-.037	.291	.075	-.173	-.440	-.706	-.988	-1.498	-1.887
.100	-1.562	-1.469	-.881	-.698	-.483	-.310	-.135	.074	-.049	-.231	-.411	-.590	-.791	-1.015	-1.560
.200	-1.134	-.863	-.677	-.565	-.432	-.322	-.211	-.055	-.153	-.273	-.384	-.497	-.621	-.707	-1.030
.300	-.801	-.645	-.593	-.516	-.422	-.341	-.259	-.133	-.216	-.306	-.385	-.467	-.551	-.606	-.737
.400	-.574	-.521	-.518	-.469	-.401	-.344	-.285	-.180	-.250	-.318	-.373	-.433	-.488	-.524	-.548
.500	-.462	-.456	-.463	-.436	-.387	-.346	-.305	-.218	-.279	-.328	-.366	-.410	-.449	-.473	-.460
.600	-.370	-.399	-.435	-.426	-.391	-.371	-.346	-.275	-.324	-.362	-.382	-.410	-.427	-.430	-.384
.700	-.283	-.311	-.354	-.357	-.342	-.329	-.318	-.264	-.306	-.328	-.334	-.347	-.354	-.345	-.297
.800	-.201	-.214	-.251	-.270	-.267	-.270	-.274	-.232	-.268	-.276	-.267	-.268	-.258	-.243	-.206
.900	-.115	-.088	-.078	-.097	-.100	-.114	-.129	-.104	-.162	-.127	-.102	-.096	-.088	-.087	-.098
.950	-.073	-.013	.020	.020	.028	.018	.007	.028	.001	.009	.030	.026	.021	.005	-.043
Lower surface															
.0375	.729	.673	.578	.419	.227	.015	-.266	-.497	-.344	-.098	.156	.338	.507	.620	.705
.075	.576	.522	.435	.302	.154	.003	-.165	-.338	-.263	-.075	.103	.238	.375	.473	.552
.150	.438	.394	.321	.217	.110	.008	-.106	-.213	-.171	-.044	.076	.171	.276	.350	.415
.250	.331	.294	.236	.156	.078	.001	-.081	-.145	-.124	-.034	.050	.119	.171	.260	.311
.350	.258	.230	.180	.112	.051	-.007	-.071	-.112	-.103	-.034	.031	.086	.165	.199	.241
.450	.199	.178	.139	.082	.032	-.012	-.062	-.085	-.085	-.033	.019	.061	.116	.154	.187
.550	.141	.127	.095	.048	.009	-.029	-.070	-.077	-.086	-.050	-.001	.031	.077	.116	.129
.650	.091	.088	.067	.027	-.003	-.027	-.057	-.054	-.069	-.041	-.010	.014	.051	.106	.086
.750	.050	.057	.045	.015	-.004	-.027	-.042	-.027	-.048	-.034	-.010	.009	.034	.075	.047
.850	.031	.054	.054	.034	.025	.010	.006	.033	.009	.009	.023	.032	.050	.049	.037
.925	.013	.056	.069	.062	.054	.064	.069	.101	.077	.069	.064	.063	.071	.054	.032
.975	[a]-.005	[a].062	[a].073	[a].105	[a].076	[a].112	[a].130	[a].144	[a].126	[a].109	[a].093	[a].086	[a].093	[a].067	[a].024
1.000	[a]-.012	[a].068	[b].077	[a].135	[b].088	[a].144	[a].171	[a].166	[b].147	[a].130	[b].108	[b].094	[a].104	[a].072	[a].020

[a] Faired value.

[b] Lower-surface value only.

CONFIDENTIAL

NACA

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(q) N = 1350 rpm; $\beta_{0.75R} = 35°$.

J	1.109	1.187	1.287	1.389	1.492	1.589	1.685	1.789	1.734	1.633	1.539	1.442	1.335	1.257	1.160
M_x	.538	.546	.554	.567	.578	.588	.601	.612	.605	.593	.584	.572	.563	.555	.538
α_x'	9.55	8.05	6.19	4.35	2.56	.94	-.61	-2.23	-1.38	.22	1.77	3.42	5.32	6.74	8.57
$\Delta\beta$	.87	.79	.65	.46	.26	.05	-.16	-.40	-.27	-.05	.15	.36	.56	.69	.83
α_i	2.89	2.72	2.34	1.86	1.39	.96	.57	.09	.35	.74	1.14	1.66	2.12	2.51	2.79
c_n	.8571	.8112	.7020	.5611	.4212	.2931	.1742	.0290	.1073	.2256	.3477	.5025	.6372	.7534	.8262
c_m	-.0322	-.0222	-.0418	-.0509	-.0527	-.0557	-.0598	-.0601	-.0589	-.0569	-.0489	-.0502	-.0451	-.0295	-.0192
c_c															

Pressure coefficient, P

	c/b															
Upper surface	0.000	1.074	1.076	1.079	1.082	1.086	1.089	1.093	1.096	1.094	1.091	1.088	1.084	1.081	1.079	1.074
	.025	-1.588	-1.963	-1.912	-.997	-.616	-.237	.075	.350	.212	-.067	-.405	-.854	-1.455	-1.961	-1.886
	.050	-1.501	-1.878	-1.405	-.887	-.585	-.313	-.067	.158	.040	-.183	-.441	-.758	-1.030	-1.791	-1.756
	.100	-1.404	-1.504	-.902	-.715	-.509	-.327	-.156	.012	-.076	-.237	-.413	-.629	-.824	-1.259	-1.527
	.200	-1.089	-.918	-.671	-.566	-.441	-.327	-.217	-.100	-.164	-.271	-.384	-.478	-.636	-.712	-1.002
	.300	-.859	-.665	-.589	-.514	-.425	-.342	-.262	-.171	-.218	-.301	-.369	-.436	-.562	-.599	-.717
	.400	-.647	-.519	-.514	-.462	-.400	-.336	-.279	-.211	-.249	-.308	-.367	-.411	-.495	-.513	-.538
	.500	-.517	-.451	-.465	-.431	-.387	-.342	-.299	-.248	-.277	-.319	-.353	-.380	-.454	-.461	-.450
	.600	-.401	-.387	-.432	-.419	-.391	-.364	-.335	-.296	-.319	-.353	-.334	-.347	-.407	-.416	-.374
	.700	-.306	-.303	-.351	-.350	-.336	-.321	-.306	-.282	-.299	-.319	-.319	-.273	-.347	-.335	-.290
	.800	-.226	-.211	-.257	-.267	-.266	-.267	-.266	-.252	-.261	-.273	-.271	-.268	-.264	-.236	-.206
	.900	-.144	-.094	-.098	-.102	-.102	-.119	-.131	-.129	-.132	-.131	-.115	-.105	-.099	-.092	-.112
	.950	-.106	-.033	-.002	.006	.018	.012	-.001	-.004	-.005	0	.014	.011	.003	-.006	-.065
Lower surface	.0375	.736	.685	.586	.449	.261	.045	-.211	-.481	-.322	-.090	.142	.373	.538	.631	.701
	.075	.582	.530	.442	.327	.178	.023	-.142	-.344	-.240	-.069	.089	.267	.400	.483	.547
	.150	.441	.399	.322	.234	.128	.019	-.086	-.223	-.157	-.045	.062	.190	.291	.358	.408
	.250	.333	.301	.238	.166	.086	.012	-.065	-.161	-.115	-.035	.038	.136	.212	.265	.307
	.350	.259	.230	.177	.124	.059	0	-.060	-.132	-.101	-.037	.019	.096	.158	.203	.235
	.450	.198	.178	.136	.090	.037	-.009	-.051	-.109	-.081	-.033	.008	.071	.122	.159	.181
	.550	.137	.127	.095	.058	.014	-.022	-.060	-.104	-.085	-.046	-.013	.037	.081	.107	.125
	.650	.089	.086	.065	.036	0	-.026	-.049	-.083	-.070	-.039	-.021	.021	.052	.078	.085
	.750	.044	.053	.046	.024	-.001	-.018	-.034	-.058	-.052	-.033	-.019	.013	.036	.050	.042
	.850	.020	.045	.052	.040	.024	.012	.010	-.004	-.003	.006	.010	.032	.050	.050	.019
	.925	.003	.042	.071	.066	.052	.064	.068	.060	.060	.054	.046	.061	.073	.065	.019
	.975	[a]-.015	[a].048	[a].093	[a].088	[a].076	[a].152	[a].111	[a].105	[a].113	[a].093	[a].077	[a].084	[a].100	[a].085	[a].032
	1.000	[a]-.034	[a].052	[a].110	[a].106	[a].090	[a].199	[a].137	[a].131	[a].143	[a].116	[a].097	[a].097	[a].117	[a].108	[a].039

[a]Faired value.

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.85 PROPELLER BLADE SECTION (x = 0.78) — Continued

(r) N = 1350 rpm; $\beta_{0.75R}$ = 25°.

J	.642	.683	.804	.885	.966	1.044	1.138	1.226	1.190	1.086	1.020	.923	.846	.752	.658
M_x	.475	.481	.491	.506	.512	.527	.535	.541	.544	.533	.526	.517	.507	.483	.496
$\alpha_x{'}$	9.22	8.33	5.73	4.04	2.38	.82	−1.01	−2.68	−2.00	0	1.30	3.26	4.85	6.84	8.87
$\Delta\beta$	.86	.81	.64	.51	.37	.23	.05	−.11	−.04	.15	.27	.44	.57	.71	.84
α_i	3.07	2.86	2.30	1.82	1.36	.88	.50	0	.25	.68	1.10	1.60	2.08	2.61	2.97
c_n	.7912	.7551	.6254	.5059	.3831	.2522	.1446	−.0006	.0740	.1951	.3117	.4457	.5703	.7109	.7798
c_m	−.0261	−.0196	−.0465	−.0510	−.0474	−.0556	−.0611	−.0617	−.0609	−.0625	−.0532	−.0489	−.0459	−.0301	−.0159
c_c															

c/b							Pressure coefficient, P								
	0.000	1.058	1.059	1.062	1.066	1.067	1.071	1.073	1.075	1.076	1.073	1.071	1.068	1.066	1.060	1.063

	c/b															
Upper surface	0.000	1.058	1.059	1.062	1.066	1.067	1.071	1.073	1.075	1.076	1.073	1.071	1.068	1.066	1.060	1.063
	.025	−1.443	−1.731	−1.578	−.907	−.530	−.162	.125	.404	.284	−.016	−.315	−.708	−1.043	−1.955	−1.723
	.050	−1.375	−1.696	−1.013	−.788	−.524	−.249	−.028	.203	.102	−.136	−.365	−.639	−.915	−1.732	−1.664
	.100	−1.292	−1.481	−.779	−.632	−.446	−.275	−.116	.054	−.019	−.198	−.331	−.535	−.734	−1.037	−1.493
	.200	−1.018	−.792	−.616	−.516	−.407	−.292	−.188	−.070	−.118	−.242	−.339	−.459	−.582	−.657	−.913
	.300	−.772	−.587	−.543	−.471	−.393	−.310	−.233	−.142	−.178	−.278	−.348	−.434	−.523	−.578	−.633
	.400	−.554	−.482	−.476	−.427	−.373	−.312	−.256	−.183	−.208	−.287	−.339	−.399	−.467	−.494	−.486
	.500	−.437	−.424	−.438	−.404	−.364	−.319	−.278	−.223	−.238	−.305	−.339	−.386	−.431	−.448	−.415
	.600	−.347	−.366	−.410	−.390	−.368	−.342	−.308	−.268	−.277	−.329	−.355	−.382	−.412	−.408	−.350
	.700	−.271	−.288	−.344	−.334	−.325	−.312	−.295	−.266	−.273	−.311	−.317	−.334	−.350	−.334	−.279
	.800	−.211	−.201	−.257	−.259	−.261	−.268	−.265	−.247	−.245	−.273	−.268	−.267	−.271	−.244	−.203
	.900	−.143	−.092	−.103	−.106	−.111	−.136	−.196	−.185	−.187	−.172	−.127	−.115	−.115	−.101	−.111
	.950	−.104	−.028	−.001	.009	.009	−.008	−.015	−.012	−.004	−.025	.001	.005	−.005	−.013	−.062
Lower surface	.0375	.722	.669	.540	.412	.216	−.017	−.267	−.543	−.383	−.149	.085	.303	.482	.608	.693
	.075	.571	.519	.401	.296	.147	−.023	−.172	−.385	−.277	−.111	.047	.210	.350	.457	.540
	.150	.431	.385	.290	.210	.100	−.015	−.116	−.253	−.182	−.074	.031	.146	.247	.337	.403
	.250	.326	.283	.209	.151	.067	−.017	−.090	−.185	−.133	−.061	.015	.100	.177	.243	.299
	.350	.248	.217	.160	.111	.044	−.021	−.076	−.148	−.107	−.056	.001	.065	.130	.184	.228
	.450	.190	.168	.122	.086	.026	−.026	−.063	−.121	−.088	−.044	−.008	.046	.096	.141	.177
	.550	.131	.115	.084	.053	.003	−.034	−.067	−.112	−.086	−.061	−.023	.019	.062	.098	.118
	.650	.083	.079	.058	.034	−.006	−.032	−.054	−.087	−.066	−.052	−.025	.007	.012	.067	.077
	.750	.039	.047	.042	.025	−.006	−.028	−.039	−.059	−.045	−.038	−.023	0	.024	.043	.040
	.850	.020	.042	.054	.044	.018	.010	.011	−.001	.011	.006	.010	.026	.040	.050	.028
	.925	.000	.042	.075	.069	.046	.061	.074	.071	.076	.069	.049	.054	.064	.064	.021
	.975	.000	a.042	a.104	a.117	a.095	a.112	a.167	a.163	a.152	a.128	a.082	a.097	a.091	a.074	a.012
	1.000	a.002	a.042	a.122	a.151	a.150	a.144	a.217	a.237	a.210	a.160	b.102	a.131	a.109	a.082	a.011

aFaired value.

bLower-surface value only.

CONFIDENTIAL

TABLE 8.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.85 PROPELLER BLADE SECTION (x = 0.78) — Concluded

(s) N = 1350 rpm; $\beta_{0.75R}$ = 20°.

J	.536	.620	.707	.756	.849	.925	.987	.962	.889	.810	.722	.648	.567
M_x	.464	.469	.493	.487	.512	.522	.519	.520	.510	.495	.486	.478	.471
α_x'	6.56	4.70	2.81	1.75	−.21	−1.78	−3.04	−2.53	−1.04	.61	2.48	4.09	5.87
$\Delta\beta$	.86	.72	.56	.46	.26	.10	−.03	.02	.18	.35	.53	.67	.81
α_1	2.63	2.12	1.64	1.20	.67	.26	.13	.06	.45	.90	1.39	1.90	2.40
c_n	.6337	.5303	.4257	.3162	.1797	.0720	−.0355	.0168	.1222	.2405	.3591	.4799	.5862
c_m	−.0374	−.0489	−.0497	−.0522	−.0560	−.0566	−.0547	−.0566	−.0549	−.0549	−.0506	−.0488	−.0450
c_c													

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.055	1.057	1.062	1.061	1.067	1.070	1.069	1.069	1.066	1.063	1.061	1.059	1.057
.025	−1.837	−.986	−.674	−.348	−.008	.256	.436	.353	.145	−.144	−.493	−.881	−1.368
.050	−1.285	−.963	−.610	−.386	−.128	.083	.235	.162	−.005	−.232	−.491	−.767	−.951
.100	−.785	−.701	−.507	−.363	−.183	−.030	.081	.027	−.095	−.258	−.431	−.618	−.766
.200	−.626	−.559	−.436	−.342	−.230	−.125	−.047	−.084	−.166	−.277	−.384	−.508	−.600
.300	−.550	−.504	−.412	−.348	−.262	−.181	−.123	−.151	−.212	−.298	−.376	−.464	−.532
.400	−.485	−.451	−.383	−.339	−.273	−.211	−.168	−.187	−.232	−.300	−.360	−.423	−.473
.500	−.440	−.422	−.364	−.335	−.285	−.238	−.206	−.221	−.254	−.307	−.350	−.400	−.434
.600	−.408	−.403	−.364	−.348	−.313	−.278	−.253	−.264	−.288	−.328	−.356	−.388	−.407
.700	−.340	−.345	−.317	−.316	−.290	−.269	−.253	−.259	−.272	−.300	−.317	−.337	−.344
.800	−.252	−.264	−.250	−.261	−.253	−.245	−.237	−.239	−.241	−.261	−.256	−.262	−.260
.900	−.098	−.106	−.099	−.122	−.130	−.143	−.143	−.142	−.129	−.137	−.111	−.108	−.102
.950	.004	.004	.017	0	−.012	−.021	−.029	−.023	−.010	−.015	.007	.007	.004
Lower surface													
.0375	.558	.446	.304	.112	−.135	−.351	−.602	−.468	−.263	−.027	.202	.392	.516
.075	.412	.317	.208	.066	−.101	−.263	−.423	−.336	−.166	−.027	.133	.276	.376
.150	.300	.224	.150	.048	−.066	−.170	−.277	−.219	−.111	−.015	.096	.194	.268
.250	.212	.158	.103	.029	−.052	−.125	−.204	−.203	−.081	−.015	.067	.137	.193
.350	.161	.110	.074	.012	−.052	−.109	−.168	−.135	−.075	−.022	.041	.099	.142
.450	.121	.084	.058	.003	−.041	−.084	−.132	−.104	−.059	−.025	.029	.074	.110
.550	.081	.048	.029	−.013	−.054	−.084	−.123	−.102	−.063	−.037	.005	.040	.069
.650	.055	.033	.022	−.013	−.045	−.066	−.096	−.079	−.049	−.030	0	.029	.049
.750	.031	.014	.009	−.017	−.036	−.048	−.069	−.057	−.035	−.027	−.006	.012	.027
.850	.031	.019	.024	.005	.001	−.001	−.016	−.005	.010	.005	.015	.027	.029
.925	.053	.048	.062	.055	.057	.062	.051	.060	.068	.059	.055	.055	.053
.975	a.088	a.095	a.112	a.112	a.117	a.117	a.108	a.114	a.117	a.109	a.098	a.103	a.079
1.000	a.122	a.135	a.151	a.148	a.156	a.150	a.139	a.142	a.148	a.138	a.127	a.138	a.098

aFaired value.

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.30 PROPELLER BLADE SECTION (x = 0.85)

(a) $N = 1140$ rpm; $\beta_{0.75R} = 45^\circ$.

J	2.582	2.477	2.329	2.208	2.089	1.945	1.840	1.700	1.658	1.752	1.888	2.000	2.131	2.246	2.358	2.531
M_x	.642	.628	.610	.596	.586	.566	.555	.544	.543	.554	.563	.579	.592	.603	.615	.634
α_x'	-2.54	-1.35	.41	1.91	3.46	5.43	6.93	9.02	9.66	8.23	6.24	4.67	2.91	1.43	.06	-1.96
$\Delta\beta$	-.15	-.07	.11	.30	.43	.61	.74	.92	.85	.68	.53	.39	.24	.07	-.11	-.13
α_1	.08	.44	.85	1.24	1.62	2.15	2.57	2.94	2.97	2.80	2.43	1.91	1.49	1.12	.73	.24
c_n	.0210	.1190	.2306	.3339	.4368	.5785	.6851	.7821	.7906	.7507	.6510	.5129	.4016	.3035	.1984	.0652
c_m	-.0622	-.0619	-.0566	-.0489	-.0483	-.0439	-.0302	-.0281	-.0378	-.0206	-.0342	-.0477	-.0497	-.0528	-.0605	-.0612
c_c																

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.107	1.102	1.096	1.091	1.088	1.082	1.079	1.076	1.076	1.079	1.081	1.086	1.090	1.094	1.098	1.104
.025	.447	.237	-.045	-.358	-.672	-1.576	-1.574	-1.412	-1.287	-1.487	-1.667	-1.042	-.577	-.258	.021	.326
.050	.214	.055	-.180	-.428	-.661	-1.104	-1.535	-1.414	a-1.324	-1.494	-1.578	-.825	-.583	-.352	-.130	.132
.100	.075	-.044	-.209	-.373	-.534	-.716	-1.365	-1.410	-1.289	-1.462	-1.137	-.659	-.480	-.326	-.176	.011
.200	-.058	-.143	-.252	-.349	-.441	-.558	-.747	-1.131	-1.133	-1.060	-.576	-.514	-.405	-.326	-.236	-.105
.300	-.131	-.195	-.273	-.341	-.418	-.503	-.515	-.814	-.906	-.701	-.507	-.469	-.394	-.326	-.264	-.167
.400	-.177	-.226	-.282	-.334	-.388	a-.444	-.440	-.564	-.665	-.492	-.451	-.425	-.372	-.319	-.278	-.204
.500	-.215	-.253	-.291	-.327	-.367	-.412	-.399	-.416	-.484	-.395	-.411	-.392	-.355	-.319	-.292	-.236
.600	-.258	-.285	-.310	-.336	-.363	-.392	-.366	-.331	-.363	-.338	-.383	-.378	-.357	-.332	-.313	-.273
.700	-.267	-.284	-.296	-.301	-.319	-.334	-.302	-.258	-.272	-.273	-.320	-.326	-.314	-.306	-.303	-.275
.800	-.237	-.248	-.255	-.242	-.249	-.252	-.218	-.188	-.199	-.198	-.238	-.249	-.248	-.254	-.262	-.243
.900	-.181	-.191	-.120	-.096	-.099	-.140	-.091	-.104	-.128	-.100	-.094	-.098	-.099	-.109	-.162	-.187
.950	-.002	0	-.004	.005	.002	-.008	-.017	-.066	-.095	-.047	-.012	-.001	.002	-.009	-.012	.003
Lower surface																
.0375	-.513	-.287	-.051	.171	.339	.501	.596	.678	.694	.645	.557	.444	.285	.096	-.123	-.396
.075	-.376	-.226	-.042	.115	.239	.369	.456	.533	.548	.498	.420	.324	.197	.060	-.095	-.297
.150	-.230	-.135	-.017	.089	.174	.269	.340	.402	.418	.374	.311	.237	.148	.051	-.053	-.177
.250	-.156	-.089	-.008	.064	.127	.199	.258	.306	.318	.280	.230	.173	.105	.036	-.035	-.120
.350	-.123	-.075	-.011	.043	.093	.150	.194	.236	.243	.215	.176	.128	.075	.022	-.035	-.098
.450	-.090	-.054	-.002	.040	.076	.115	.155	.185	.190	.171	.142	.107	.064	.022	-.023	-.071
.550	-.080	-.053	-.015	.018	.049	.085	.116	.137	.140	.121	.101	.068	.034	0	-.033	-.066
.650	-.067	-.048	-.022	.003	.024	.050	.077	.088	.086	.074	.063	.038	.013	-.015	-.039	-.060
.750	-.039	-.027	-.013	.001	.017	.033	.051	.052	.045	.043	.043	.028	.010	-.009	-.025	-.034
.850	.011	.020	.035	.036	.043	.052	.057	.043	.030	.043	.057	.049	.043	.034	.028	.026
.925	.067	.069	.069	.051	.049	.046	.041	.005	-.013	.014	.045	.047	.047	.054	.060	.068
.975	a.115	a.114	a.091	a.078	a.087	a.102	a.055	a-.010	a-.036	a.010	a.060	a.078	a.045	a.081	a.084	a.100
1.000	a.142	a.139	a.103	a.087	a.110	a.160	a.059	a-.022	a-.050	a.008	a.078	a.095	a.042	a.101	a.094	a.118

[a]Faired value.

CONFIDENTIAL

TABLE 9.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) - Continued

(b) N = 1350 rpm; $\beta_{0.75R} = 45°$.

J	1.780	1.873	1.980	2.081	2.200	2.300	2.407	2.534	2.562	2.488	2.381	2.272	2.151	2.033	1.938	1.830
M_x	.660	.672	.681	.703	.712	.728	.742	.76^	.763	.751	.736	.722	.706	.690	.679	.662
α_x'	7.81	6.45	4.94	3.57	2.01	.76	-.53	-2.00	-2.31	-1.48	-.22	1.11	2.65	4.22	5.53	7.08
$\Delta\beta$	1.27	1.13	.86	.64	.44	.24	0	-.21	-.24	-.14	.06	.30	.52	.73	.98	1.21
α_i	3.21	2.99	2.34	1.82	1.39	1.02	.63	.13	.01	.37	.70	1.08	1.51	2.03	2.49	3.16
c_n	.8582	.8012	.6279	.4916	.3755	.2761	.1716	.0355	.0026	.1013	.1890	.2916	.4110	.5439	.6654	.8460
c_m	-.0169	-.0231	-.0415	-.0528	-.0565	-.0621	-.0660	-.0732	-.0759	-.0700	-.0664	-.0603	-.0534	-.0483	-.0405	-.0247
c_c																

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.114	1.118	1.122	1.131	1.133	1.140	1.146	1.153	1.155	1.150	1.143	1.138	1.131	1.125	1.121	1.114
.025	-2.272	-2.086	-1.745	-.700	-.384	-.094	.170	.390	.430	.316	.116	-.150	-.521	-1.305	-1.885	-2.307
.050	-2.082	-1.977	-1.564	-.800	-.478	-.232	-.004	.199	.237	.127	-.052	-.282	-.590	-.799	-1.757	-2.143
.100	-1.860	-1.763	-.638	-.630	-.433	-.271	-.111	.050	.080	-.010	-.145	-.306	-.499	-.678	-.925	-1.919
.200	-.830	-.568	-.579	-.513	-.407	-.314	-.209	-.097	-.074	-.139	-.235	-.335	-.440	-.548	-.571	-.638
.300	-.585	-.535	-.536	-.481	-.401	-.332	-.260	-.175	-.160	-.209	-.277	-.348	-.434	-.506	-.541	-.525
.400	-.501	-.495	-.487	-.447	-.394	-.339	-.290	-.228	-.217	-.253	-.302	-.351	-.417	-.462	-.493	-.491
.500	-.431	-.448	-.442	-.417	-.381	-.346	-.313	-.271	-.264	-.289	-.322	-.356	-.397	-.426	-.448	-.445
.600	-.383	-.418	-.421	-.408	-.390	-.367	-.348	-.326	-.323	-.334	-.355	-.375	-.401	-.415	-.422	-.411
.700	-.310	-.349	-.359	-.357	-.350	-.343	-.340	-.328	-.329	-.334	-.344	-.349	-.356	-.357	-.357	-.341
.800	-.218	-.248	-.259	-.267	-.269	-.274	-.281	-.279	-.280	-.281	-.283	-.279	-.271	-.267	-.256	-.241
.900	-.081	-.084	-.085	-.093	-.095	-.106	-.116	-.119	-.120	-.122	-.118	-.108	-.099	-.091	-.088	-.086
.950	-.013	.006	.012	.012	.014	.005	-.004	+.007	-.008	-.007	-.004	.004	.011	.009	.007	.001
Lower surface																
.0375	.673	.600	.500	.368	.183	-.001	-.248	-.996	-1.177	-.316	-.193	.037	.251	.426	.546	.643
.075	.526	.463	.373	.263	.121	-.011	-.175	-.294	-.471	-.292	-.142	.013	.171	.310	.412	.498
.150	.402	.349	.278	.196	.092	.005	-.098	-.209	-.213	-.178	-.081	.016	.125	.230	.310	.377
.250	.305	.263	.205	.142	.067	.005	-.067	-.145	-.160	-.120	-.053	.013	.089	.170	.231	.288
.350	.237	.202	.154	.102	.043	-.002	-.061	-.118	-.130	-.098	-.052	.002	.058	.124	.174	.220
.450	.184	.158	.116	.073	.024	-.006	-.046	-.090	-.100	-.075	-.040	-.005	.037	.091	.133	.171
.550	.136	.114	.080	.044	.010	-.013	-.049	-.081	-.089	-.070	-.045	-.013	.015	.059	.095	.127
.650	.090	.077	.052	.024	-.007	-.027	-.050	-.072	-.077	-.066	-.048	-.026	-.002	.034	.063	.087
.750	.063	.058	.036	.015	-.007	-.016	-.057	-.042	-.046	-.038	-.030	-.019	-.006	.023	.043	.094
.850	.062	a.051	a.038	a.025	a.011	a.020	a0	a.004	a.002	a.009	a.004	a.015	a0	a.030	a.041	a.079
.925	.051	.065	.058	.050	.048	.062	.067	.069	.066	.070	.064	.055	.041	.054	.060	.097
.975	a.030	a.082	a.078	a.080	a.090	a.095	a.114	a.116	a.093	a.115	a.110	a.085	a.100	a.086	a.080	a.109
1.000	a.020	a.090	a.089	a.102	a.138	a.110	a.145	a.140	a.103	a.138	a.134	a.100	a.138	a.105	a.097	a.113

a Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) — Continued

(c) N = 1500 rpm; $\beta_{0.75R}$ = 45°.

	J	2.535	2.462	2.380	2.287	2.209	2.123	1.980	1.996	2.083	2.241	2.335	2.419	2.504
	M_x	.848	.833	.822	.804	.791	.779	.756	.761	.769	.796	.810	.822	.838
	α_x'	-2.01	-1.18	-.21	.92	1.90	3.01	4.94	4.72	3.54	1.50	.33	-.67	-1.66
	$\Delta\beta$	-.52	-.30	-.06	.23	.49	.79	1.29	1.23	.93	.37	.08	-.17	-.43
	α_1	.09	.30	.72	1.11	1.52	1.81	2.63	2.52	2.09	1.36	1.01	.58	.15
	c_n	.0252	.0806	.1958	.3003	.4126	.4897	.7059	.6752	.5645	.3665	.2739	.1594	.0406
	c_m	-.0986	-.0891	-.0743	-.0695	-.0686	-.0544	-.0353	-.0412	-.0508	-.0651	-.0735	-.0787	-.0937
	c_c													
	c/b							Pressure coefficient, P						
Upper surface	0.000	1.193	1.185	1.180	1.172	1.166	1.161	1.151	1.153	1.157	1.168	1.175	1.180	1.188
	.025	.454	.355	.189	-.040	-.295	-.530	-1.327	-1.255	-.797	-.189	.045	.256	.398
	.050	.262	.164	.006	-.211	-.465	-.735	-1.286	-1.217	-.817	-.357	-.133	.067	.205
	.100	.105	.020	-.107	-.250	-.444	-.674	-1.221	-1.147	-.830	-.377	-.215	-.061	.055
	.200	-.054	-.123	-.224	-.355	-.460	-.534	-1.176	-1.084	-.791	-.419	-.305	-.191	-.098
	.300	-.173	-.230	-.306	-.389	-.456	-.500	-.482	-.407	-.468	-.430	-.359	-.279	-.207
	.400	-.266	-.307	-.358	-.404	-.445	-.480	-.405	-.433	-.478	-.427	-.385	-.335	-.283
	.500	-.313	-.343	-.377	-.409	-.429	-.447	-.424	-.438	-.447	-.422	-.395	-.364	-.329
	.600	-.424	-.450	-.466	-.459	-.459	-.452	-.435	-.474	-.450	-.454	-.452	-.456	-.439
	.700	-.524	-.469	-.416	-.408	-.397	-.384	-.374	-.384	-.380	-.402	-.404	-.418	-.465
	.800	-.286	-.298	-.296	-.295	-.283	-.270	-.269	-.275	-.269	-.292	-.300	-.309	-.317
	.900	-.075	-.086	-.087	-.092	-.081	-.073	-.078	-.081	-.074	-.089	-.089	-.092	-.090
	.950	.045	.036	.033	.029	.036	.037	-.033	-.030	.036	.028	.030	.029	.030
Lower surface	.0375	-.951	-.826	-.272	-.012	.167	.309	.511	.477	.380	.092	-.090	-.492	-.917
	.075	-.905	-.648	-.186	-.021	.109	.220	.388	.359	.278	.054	-.072	-.221	-.812
	.150	-.771	-.152	-.101	-.003	.087	.164	.295	.271	.210	.048	-.030	-.138	-.233
	.250	-.101	-.116	-.069	.001	.063	.121	.225	.205	.155	.033	-.019	-.093	-.111
	.350	-.078	-.098	-.064	-.010	.040	.085	.165	.151	.113	.042	-.024	-.080	-.102
	.450	-.068	-.077	-.051	-.014	.020	.057	.140	.123	.082	.004	-.021	-.063	-.081
	.550	-.071	-.074	-.055	-.023	.004	.030	.099	.087	.051	-.009	-.006	-.063	-.079
	.650	-.072	-.070	-.059	-.037	-.012	.009	.061	.049	.027	-.024	-.017	-.063	-.073
	.750	-.044	-.045	-.041	-.028	-.012	.004	.045	.034	.018	-.019	-.028	-.041	-.044
	.850	.027	.026	.023	a.010	a.014	a0	.070	a.015	a.030	a.014	a.003	a.010	a.001
	.925	.052	.068	.062	.062	.055	a.049	.071	.061	.057	a.057	.067	.069	.075
	.975	a.109	a.119	a.105	a.114	a.128	a.100	.095	.097	.084	a.095	.098	a.105	a.120
	1.000	a.150	a.148	a.129	a.154	a.145	a.141	a.120	a.119	a.103	a.115	a.111	a.124	a.142

[a] Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) — Continued

(d) N = 1600 rpm; $\beta_{0.75R} = 45°$.

J	2.523	2.473	2.427	2.368	2.318	2.259	2.179	2.108	2.062	2.085	2.152	2.210	2.260	2.335	2.392	2.467	2.499
M_X	.895	.884	.873	.863	.856	.842	.832	.822	.813	.819	.826	.839	.847	.855	.868	.881	.886
α_{x}'	-1.89	-1.30	-.77	-.06	.54	1.27	2.30	3.22	3.82	3.52	2.64	1.88	1.27	.34	-.36	-1.25	-1.59
$\Delta\beta$	-.85	-.58	-.32	-.01	.12	.45	.74	.99	1.15	1.07	.84	.63	.44	.14	-.14	-.54	-.73
α_i	-.19	.17	.50	.85	1.05	1.37	1.78	2.04	2.38	2.16	1.87	1.61	1.36	1.03	.73	.26	-.02
c_n	-.0516	.0477	.1374	.2316	.2852	.3710	.4826	.5523	.6452	.5826	.5065	.4355	.3671	.2800	.1981	.0703	-.0065
c_m	-.1108	-.1118	-.1044	-.0939	-.0828	-.0714	-.0737	-.0546	-.0474	-.0519	-.0588	-.0729	-.0729	-.0823	-.0975	-.1067	-.1093
c_c	.0218	.0208	.0191	.0161	.0121	.0073	-.0004				-.0023	.0035	.0076	.0118	.0168	.0199	.0210

Pressure coefficient, P

c/b																	
Upper surface																	
0.000	1.217	1.211	1.205	1.199	1.196	1.190	1.185	1.180	1.176	1.179	1.182	1.188	1.192	1.195	1.202	1.208	1.211
.025	.482	.418	.338	.226	.102	-.077	-.314	-.454	-.766	-.565	-.375	-.203	-.065	.119	.266	.392	.449
.050	.295	.230	.150	.042	-.080	-.264	-.530	-.645	-.772	-.680	-.586	-.405	-.254	-.067	.078	.201	.260
.100	.139	.081	.010	-.083	-.177	-.309	-.504	-.669	-.775	-.733	-.640	-.559	-.434	-.282	-.185	-.095	-.049
.200	-.019	-.072	-.134	-.211	-.292	-.384	-.457	-.666	-.866	-.805	-.718	-.552	-.459	-.381	-.305	-.226	-.182
.300	-.153	-.204	-.260	-.323	-.384	-.457	-.605	-.666	-.866	-.805	-.718	-.552	-.459	-.438	-.366	-.303	-.271
.400	-.247	-.285	-.327	-.387	-.431	-.488	-.605	-.725	-.875	-.817	-.670	-.540	-.486	-.433	-.366	-.303	-.271
.500	-.325	-.368	-.408	-.445	-.467	-.490	-.360	-.349	-.278	-.334	-.362	-.456	-.491	-.467	-.438	-.388	-.351
.600	-.403	-.450	-.476	-.511	-.515	-.502	-.484	-.437	-.324	-.386	-.471	-.479	-.517	-.537	-.498	-.472	-.428
.700	-.520	-.545	-.538	-.579	-.568	-.547	-.426	-.426	-.314	-.359	-.400	-.551	-.549	-.584	-.576	-.557	-.538
.800	-.632	-.659	-.640	-.503	-.300	-.257	-.256	-.250	-.216	-.246	-.257	-.264	-.256	-.318	-.587	-.660	-.650
.900	-.066	-.050	-.043	-.038	-.049	-.057	-.047	-.048	-.023	-.049	-.050	-.055	-.061	-.048	-.040	-.049	-.058
.950	.021	.056	.072	.071	.063	.057	.062	.057	.085	.055	.057	.058	.053	.063	.069	.058	.043
Lower surface																	
.0375	-.807	-.759	-.669	-.316	-.107	.067	.242	.335	.452	.374	.275	.156	.049	-.137	-.465	-.740	-.792
.075	-.775	-.720	-.574	-.197	-.082	.038	.171	.245	.348	.275	.196	.104	.024	-.105	-.300	-.699	-.758
.150	-.694	-.618	-.181	-.104	-.037	.039	.134	.185	.273	.211	.151	.084	.030	-.046	-.130	-.557	-.669
.250	-.638	-.214	-.102	-.070	-.022	.030	.098	.138	.212	.156	.109	.061	.021	-.036	-.087	-.108	-.494
.350	-.292	-.084	-.088	-.064	-.031	.012	.068	.100	.167	.116	.076	.038	.006	-.039	-.076	-.087	-.077
.450	-.037	-.060	-.070	-.052	-.025	-.002	.044	.070	.130	.082	.049	.017	-.007	-.019	-.036	-.063	-.047
.550	-.037	-.065	-.071	-.059	-.037	-.013	.019	.041	.097	.053	.022	-.003	-.019	-.035	-.056	-.071	-.055
.650	-.052	-.073	-.074	-.063	-.048	-.032	.001	.018	.071	.026	.002	-.019	-.035	-.056	-.071	-.080	-.066
.750	-.040	-.049	-.047	-.041	-.031	-.024	-.003	.009	.059	.016	-.003	-.017	-.026	-.039	-.046	-.054	-.045
.850	-.010	.022	.029	.032	[a].010	[a].010	[a].020	[a].013	[a].066	[a].028	[a].012	[a].010	[a].012	[a].005	.026	[a]-.011	[a]-.005
.925	.047	.060	.070	.075	.078	.067	.061	.059	.101	.063	.053	.059	.066	.070	.069	.059	.056
.975	[a].090	[a].080	[a].093	[a].119	[a].138	[a].114	[a].105	[a].108	[a].160	[a].106	[a].110	[a].140	[a].153	[a].140	[a].112	[a].105	[a].098
1.000	[a].116	[a].085	[a].108	[a].141	[a].166	[a].140	[a].130	[a].131	[a].192	[a].130	[a].143	[a].200	[a].210	[a].186	[a].143	[a].136	[a].120

[a]Faired value.

NACA

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) — Continued

(e) $M = 0.56$; $\beta_{0.75R} = 45°$.

	J	2.143	2.183	2.220	2.258	2.297	2.330	2.365	2.392	2.415	2.445	2.480	2.511	2.534
	M_x	.896	.886	.881	.872	.864	.856	.849	.840	.836	.831	.828	.818	.815
	α_x'	2.75	2.23	1.76	1.29	.81	.39	-.03	-.36	-.62	-.98	-1.38	-1.75	-1.99
	$\Delta\beta$	.71	.57	.46	.35	.24	.15	.03	-.06	-.13	-.21	-.32	-.42	-.48
	α_i	1.79	1.66	1.55	1.35	1.19	1.00	.84	.71	.58	.48	.31	.16	.08
	c_n	.4858	.4503	.4184	.3661	.3239	.2706	.2297	.1923	.1577	.1306	.0852	.0439	.0219
	c_m	-.0852	-.0818	-.0876	-.0886	-.0870	-.0813	-.0818	-.0847	-.0872	-.0905	-.0854	-.0882	-.0898
	c_c	.0101	.0093	.0099	.0109	.0120	.0128	.0139	.0153	.0157	.0161			

	c/b	Pressure coefficient, P												
Upper surface	0.000	1.217	1.211	1.209	1.204	1.200	1.196	1.193	1.188	1.186	1.184	1.182	1.179	1.177
	.025	-.126	-.085	-.032	.025	.087	.138	.200	.251	.290	.322	.364	.417	.442
	.050	-.340	-.296	-.229	-.162	-.096	-.044	.014	.063	.102	.133	.173	.223	.248
	.100	-.348	-.291	-.259	-.225	-.186	-.149	-.102	-.063	-.032	-.004	.028	.072	.093
	.200	-.486	-.467	-.442	-.372	-.300	-.261	-.221	-.187	-.160	-.137	-.109	-.072	-.052
	.300	-.556	-.543	-.490	-.413	-.399	-.365	-.331	-.297	-.269	-.246	-.222	-.186	-.168
	.400	-.565	-.544	-.506	-.489	-.443	-.423	-.379	-.361	-.335	-.313	-.291	-.260	-.243
	.500	-.639	-.611	-.583	-.542	-.492	-.467	-.428	-.382	-.366	-.349	-.336	-.311	-.296
	.600	-.696	-.667	-.638	-.596	-.559	-.495	-.480	-.459	-.460	-.450	-.437	-.401	-.382
	.700	-.754	-.716	-.680	-.654	-.609	-.570	-.558	-.563	-.517	-.449	-.430	-.404	-.387
	.800	-.204	-.248	-.400	-.392	-.343	-.287	-.276	-.284	-.299	-.307	-.314	-.312	-.308
	.900	-.127	-.062	-.019	-.015	-.027	-.048	-.058	-.077	-.088	-.092	-.102	-.105	-.109
	.950	-.104	-.007	.062	.080	.078	.066	.059	.046	.038	.036	.026	.022	.019
Lower surface	.0375	.215	.161	.095	.017	-.065	-.147	-.247	-.418	-.579	-.692	-.846	-.994	-1.055
	.075	.154	.112	.062	.005	-.054	-.109	-.161	-.188	-.231	-.376	-.638	-.860	-.933
	.150	.125	.094	.060	.022	-.016	-.051	-.083	-.123	-.146	-.153	-.151	-.151	-.210
	.250	.092	.071	.047	.020	-.006	-.030	-.054	-.079	-.094	-.101	-.116	-.117	-.114
	.350	.058	.040	.024	.002	-.018	-.035	-.051	-.068	-.080	-.085	-.097	-.104	-.105
	.450	.038	.025	.014	-.003	-.018	-.030	-.041	-.053	-.063	-.065	-.074	-.080	-.082
	.550	-.001	-.009	-.014	-.024	-.033	-.041	-.047	-.056	-.062	-.063	-.071	-.074	-.076
	.650	-.043	-.043	-.041	-.042	-.047	-.049	-.051	-.057	-.060	-.059	-.066	-.068	-.067
	.750	-.060	-.052	-.038	-.033	-.031	-.031	-.030	-.032	-.035	-.033	-.060	-.037	-.037
	.850	[a]-.060	[a]-.040	[a]-.012	[a]-.012	[a].010	[a].020	[a].022	[a].022	[a].013	[a].020	[a]0	[a].007	[a].010
	.925	-.037	-.004	.043	.062	.074	.079	.082	.080	.080	.081	.079	.079	.080
	.975	[a]-.086	[a].020	[a].095	[a].130	[a].125	[a].137	[a].126	[a].102	[a].134	[a].129	[a].135	[a].134	[a].148
	1.000	[a]-.088	[a].033	[a].124	[a].163	[a].151	[a].169	[a].148	[a].154	[a].166	[a].156	[a].167	[a].168	[a].188

[a]Faired value.

CONFIDENTIAL

TABLE 9.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) - Continued

(f) M = 0.60; $\beta_{0.75R}$ = 45°.

J	2.140	2.168	2.193	2.220	2.249	2.277	2.304	2.334	2.379	2.405	2.430	2.460	2.484	2.535
M_x'	.961	.957	.950	.943	.936	.929	.923	.917	.914	.908	.899	.893	.888	.876
α_x'	2.80	2.43	2.11	1.76	1.39	1.05	.71	.34	-.21	-.52	-.80	-1.14	-1.43	-2.02
$\Delta\beta$	.42	.40	.36	.30	.21	.11	.01	-.11	-.28	-.36	-.46	-.57	-.67	-.86
α_1	1.52	1.51	1.37	1.29	1.17	1.58	.94	.84	.68	.49	.38	.24	.21	0
c_n	.4103	.4071	.3706	.3490	.3174	.2735	.2548	.2268	.1848	.1342	.1039	.0642	.0561	.0006
c_m	-.1027	-.1005	-.0952	-.0936	-.0981	-.0941	-.0983	-.1017	-.1045	-.1062	-.1099	-.1146	-.1170	-.1278
c_c	.0250	.0247	.0238	.0236	.0231	.0235	.0235	.0238	.0235	.0233	.0222	.0222	.0211	.0220

Pressure coefficient, P

Upper surface

c/b														
0.000	1.252	1.250	1.246	1.242	1.238	1.235	1.231	1.228	1.227	1.223	1.219	1.215	1.212	1.206
.025	.044	.046	.081	.122	.152	.189	.221	.253	.308	.340	.369	.399	.416	.467
.050	-.156	-.155	-.113	-.065	-.034	.007	.035	.067	.120	.153	.180	.209	.225	.275
.100	-.181	-.168	-.139	-.118	-.105	-.088	-.072	-.050	-.009	.017	.039	.062	.075	.116
.200	-.322	-.335	-.320	-.300	-.280	-.246	-.211	-.187	a-.173	-.124	-.107	-.093	-.079	-.052
.300	-.403	-.430	-.416	-.392	-.345	-.304	-.304	-.300	-.269	-.249	-.235	-.221	-.209	-.175
.400	-.438	-.454	-.435	-.416	-.407	-.398	-.383	-.359	-.340	-.328	-.316	-.295	-.289	-.268
.500	-.506	-.528	-.503	-.488	-.486	-.468	-.456	-.451	-.421	-.393	-.385	-.383	-.376	-.326
.600	-.592	-.612	-.591	-.567	-.565	-.563	-.556	-.547	-.516	-.504	-.499	-.488	-.469	-.442
.700	-.650	-.662	-.654	-.644	-.633	-.613	-.611	-.611	-.596	-.595	-.579	-.557	-.555	-.538
.800	-.720	-.747	-.701	-.670	-.665	-.689	-.680	-.680	-.679	-.683	-.671	-.675	-.669	-.615
.900	-.271	-.255	-.209	-.184	-.163	-.164	-.147	-.135	-.128	-.111	-.092	-.087	-.069	-.071
.950	-.257	-.236	-.191	-.164	-.139	-.138	-.118	-.101	-.093	-.061	-.034	-.006	.036	-.069

Lower surface

c/b														
.0375	.185	.141	.105	.040	-.014	-.098	-.178	-.286	-.449	-.554	-.636	-.710	-.761	-.869
.075	.128	.096	.070	.021	-.020	-.081	-.138	-.215	-.374	-.500	-.594	-.671	-.726	-.837
.150	.114	.088	.072	.038	.011	-.029	-.058	-.087	-.138	-.271	-.434	-.559	-.620	-.738
.250	.088	.063	.054	.031	.012	-.018	-.040	-.062	-.087	-.104	-.111	-.180	-.244	-.488
.350	.051	.029	.023	.001	-.014	-.037	-.052	-.067	-.080	-.089	-.092	-.088	-.081	-.058
.450	.015	-.005	-.007	-.020	-.029	-.047	-.059	-.070	-.075	-.079	-.078	-.072	-.066	-.043
.550	-.028	-.046	-.046	-.058	-.066	-.080	-.086	-.093	-.094	-.094	-.089	-.080	-.073	-.054
.650	-.081	-.099	-.097	-.107	-.111	-.118	-.116	-.118	-.118	-.113	-.109	-.099	-.087	-.058
.750	-.129	-.150	-.141	-.143	-.142	-.141	-.125	-.118	-.104	-.095	-.080	-.064	-.053	-.030
.850	a-.140	a-.160	a-.141	a-.148	-.140	a-.125	a-.102	a-.091	a-.074	a-.071	a-.043	a-.021	a-.010	a.011
.925	-.130	-.146	-.137	-.134	-.118	-.092	-.063	-.049	-.029	-.013	.010	.036	.058	.093
.975	a-.130	a-.127	a-.127	a-.124	a-.105	a-.115	a-.037	a-.024	a0	.020	.047	.075	.136	.130
1.000	a-.132	a-.113	a-.123	a-.117	a-.096	a-.099	a-.023	a-.010	a.016	.037	.067	.096	.189	.148

aFaired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 9.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) - Continued

(g) $M = 0.66$; $\beta_{0.75R} = 45°$.

J	2.142	2.158	2.180	2.205	2.223	2.256	2.278	2.288	2.318	2.349	2.359	2.384	2.426
M_x	1.058	1.050	1.044	1.037	1.028	1.023	1.017	1.008	1.001	.996	.991	.981	.976
$\alpha_x{}'$	2.77	2.56	2.27	1.95	1.72	1.31	1.03	.91	.54	.16	.04	-.26	-.76
$\Delta\beta$	.12	.07	-.01	-.09	-.15	-.25	-.33	-.36	-.46	-.56	-.59	-.67	-.79
α_i	1.28	1.21	1.11	1.00	.91	.79	.65	.52	.40	.22	.09	.04	-.28
c_n	.3474	.3265	.3006	.2703	.2465	.2148	.1761	.1406	.1084	.0606	.0252	.0097	-.0749
c_m	-.1210	-.1263	-.1178	-.1170	-.1150	-.1118	-.1095	-.1067	-.1036	-.0895	-.0872	-.0857	-.0736
c_c	.0386	.0390	.0401	.0407	.0406	.0409	.0412	.0409	.0401	.0373	.0367	.0363	.0339

	c/b	Pressure coefficient, P												
Upper surface	0.000	1.312	1.306	1.302	1.298	1.292	1.289	1.285	1.280	1.275	1.273	1.269	1.264	1.261
	.025	.269	.292	.307	.321	.336	.364	.383	.393	.411	.433	.447	.463	.489
	.050	.072	.100	.120	.135	.153	.184	.203	.212	.229	.253	.268	.280	.309
	.100	.035	.056	.066	.067	.074	.089	.099	.100	.111	.128	.140	.147	.170
	.200	-.138	-.119	-.113	-.112	-.102	-.081	-.065	-.054	-.032	-.013	.001	.006	.024
	.300	-.210	-.205	-.202	-.206	-.198	-.174	-.139	-.130	-.127	-.121	-.115	-.117	-.098
	.400	-.252	-.242	-.240	-.244	-.236	-.227	-.224	-.228	-.219	-.201	-.182	-.188	-.182
	.500	-.324	-.321	-.317	-.316	-.307	-.302	-.300	-.304	-.293	-.279	-.272	-.280	-.262
	.600	-.400	-.398	-.396	-.403	-.395	-.383	-.374	-.378	-.377	-.371	-.364	-.371	-.355
	.700	-.471	-.464	-.458	-.466	-.466	-.467	-.462	-.428	-.456	-.438	-.433	-.445	-.443
	.800	-.536	-.546	-.550	-.563	-.562	-.557	-.547	-.551	-.551	-.550	-.547	-.559	-.546
	.900	-.637	-.643	-.645	-.658	-.660	-.665	-.668	-.673	-.665	-.657	-.655	-.668	-.520
	.950	-.646	-.662	-.666	-.681	-.681	-.680	-.676	-.681	-.634	-.352	-.276	-.227	-.171

	c/b													
Lower surface	.0375	.192	.141	.095	.036	-.008	-.079	-.141	-.200	-.257	-.308	-.351	-.411	-.468
	.075	.152	.107	.057	.007	-.036	-.100	-.150	-.198	-.249	-.299	-.341	-.399	-.449
	.150	.150	.120	.092	.051	.022	-.028	-.085	-.140	-.201	-.237	-.282	-.335	-.387
	.250	.136	.117	.092	.058	.033	-.015	-.052	-.089	-.155	-.212	-.260	-.319	-.372
	.350	.099	.084	.065	.035	.019	-.003	-.033	-.062	-.088	-.126	-.190	-.279	-.356
	.450	.072	.059	.040	.013	-.001	-.029	-.052	-.075	-.092	-.105	-.114	-.172	-.277
	.550	.038	.026	.008	-.019	-.031	-.053	-.072	-.093	-.113	-.122	-.133	-.159	-.203
	.650	-.036	-.047	-.062	-.085	-.094	-.111	-.126	-.140	-.155	-.156	-.164	-.191	-.218
	.750	-.086	-.096	-.111	-.138	-.141	-.155	-.165	-.177	-.183	-.178	-.180	-.198	-.213
	.850	[a]-.106	[a]-.121	[a]-.150	[a]-.162	[a]-.180	[a]-.188	[a]-.194	[a]-.206	[a]-.210	[a]-.200	[a]-.190	[a]-.205	[a]-.195
	.925	-.135	-.143	-.158	-.179	-.186	-.197	-.204	-.211	-.213	-.202	-.198	-.195	-.159
	.975	[a]-.163	[a]-.172	[a]-.180	[a]-.192	[a]-.210	[a]-.221	[a]-.227	[a]-.240	[a]-.240	[a]-.219	[a]-.200	[a]-.180	[a]-.126
	1.000	[a]-.180	[a]-.193	[a]-.191	[a]-.205	[a]-.229	[a]-.245	[a]-.251	[a]-.258	[a]-.253	[a]-.230	[a]-.200	[b]-.170	[b]-.108

[a]Faired value.

[b]Lower-surface value only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.30 PROPELLER BLADE SECTION (x = 0.85) — Continued

(h) One-blade propeller; N = 1500 rpm; $\beta_{0.75R} = 45°$.

J	2.297	2.241	2.185	2.150	2.087	2.036	1.979	1.939	1.894	1.847	1.787	1.741
M_x	.784	.775	.766	.760	.749	.743	.731	.731	.725	.719	.710	.704
α_x'	-5.50	1.50	2.21	2.66	3.49	4.18	4.96	5.52	6.15	6.83	7.71	8.40
$\Delta\beta$	.20	.37	.57	.69	.92	1.10	1.29	1.41	1.55	1.67	1.81	1.89
α_1	.72	.90	1.05	1.22	1.35	1.53	1.65	1.82	2.05	2.15	2.27	2.21
c_n	.2816	.3523	.4074	.4732	.5239	.5942	.6413	.7071	.7929	.8335	.8819	.8600
c_m	-.0701	-.0596	-.0582	-.0520	-.0503	-.0436	-.0385	-.0336	-.0246	-.0198	-.0147	-.0131
c_c												

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.163	1.159	1.156	1.153	1.149	1.147	1.142	1.141	1.139	1.136	1.133	1.131
.025	-.004	-.194	-.363	-.512	-.598	-1.138	-1.374	-1.519	-1.676	-1.797	-1.969	-2.071
.050	-.180	-.336	-.485	-.679	-.874	-1.103	-1.337	-1.475	-1.592	-1.697	-1.861	-1.952
.100	-.280	-.388	-.494	-.625	-.781	-.982	-1.256	-1.400	-1.524	-1.617	-1.750	-1.829
.200	-.338	-.404	-.470	-.522	-.571	-.572	-.589	-.939	-1.456	-1.488	-1.358	-1.067
.300	-.354	-.400	-.446	-.476	-.512	-.527	-.489	-.461	-.541	-.666	-.822	-.838
.400	-.376	-.405	-.436	-.453	-.478	-.489	-.480	-.451	-.426	-.439	-.547	-.564
.500	-.392	-.405	-.428	-.434	-.451	-.458	-.456	-.439	-.417	-.392	-.391	-.402
.600	-.387	-.391	-.406	-.407	-.415	-.418	-.412	-.397	-.382	-.358	-.329	-.323
.700	-.367	-.363	-.371	-.365	-.368	-.367	-.358	-.345	-.332	-.310	-.276	-.258
.800	-.290	-.285	-.287	-.278	-.278	-.274	-.263	-.251	-.243	-.227	-.198	-.183
.900	-.095	-.090	-.092	-.083	-.083	-.079	-.073	-.071	-.071	-.068	-.063	-.067
.950	.031	.033	.029	.034	.032	.032	.032	.029	.024	.023	.006	-.011
Lower surface												
.0375	-.053	[a].082	.166	.256	.342	.411	.478	.526	.574	.618	.665	.689
.075	[a]-.037	[a].071	[a].136	[a].212	[a].272	[a].323	[a].380	[a].430	[a].479	[a].521	[a].558	[a].572
.150	-.012	.053	.093	.144	.192	.236	.280	.314	.348	.382	.416	.434
.250	-.012	.038	.064	.104	.139	.173	.206	.233	.261	.288	.314	.327
.350	-.025	.012	.030	.064	.091	.119	.147	.170	.192	.214	.236	.244
.450	-.020	.010	.023	.050	.072	.096	.120	.138	.157	.177	.192	.199
.550	-.012	.012	.023	.044	.061	.081	.099	.116	.133	.150	.162	.165
.650	-.025	-.007	.001	.019	.031	.047	.063	.076	.090	.103	.110	.111
.750	-.020	-.007	-.006	.009	.016	.029	.039	.062	.079	.088	.083	.066
.850	.041	.048	.045	.054	.056	.064	.069	.076	.083	.088	.070	.072
.925	.064	.065	.057	.059	.056	.062	.061	.066	.067	.070	.054	.037
.975	[a].067	[a].069	[a].060	[a].060	[a].050	[a].035	[a].050	[a].050	[a].038	[a].043	[a].021	[a]-.001
1.000	[b].065	[b].070	[b].062	[b].059	[b].047	[b].017	[b].040	[b].043	[b].021	[b].030	[b]0	[b]-.018

[a] Faired value.

[b] Lower surface only.

CONFIDENTIAL

NACA

TABLE 9.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-305.30 PROPELLER BLADE SECTION (x = 0.85) - Continued

(1) One-blade propeller; M = 0.57; $\beta_{0.75R}$ = 45°.

J	2.493	2.448	2.354	2.325	2.298	2.267	2.241	2.213	2.185	2.155	2.121	2.096	2.084	2.058	2.035	2.013
M_x	.832	.841	.862	.868	.872	.879	.885	.892	.897	.901	.905	.912	.920	.927	.932	.939
$\alpha_x{}'$	-1.53	-1.01	.10	.46	.79	1.17	1.50	1.85	2.21	2.60	3.04	3.37	3.53	3.88	4.19	4.49
$\Delta\beta$	-.36	-.22	.17	.16	.24	.32	.40	.48	.57	.67	.77	.85	.88	.95	1.01	1.07
α_i	.08	.25	.64	.71	.82	.92	1.00	1.11	1.20	1.30	1.43	1.48	1.52	1.64	1.73	1.81
c_n	.0258	.0826	.2126	.2313	.2694	.3026	.3290	.3632	.3942	.4252	.4677	.4816	.4965	.5332	.5658	.5877
c_m	-.0864	-.0873	-.0801	-.0791	-.0775	-.0750	-.0773	-.0761	-.0788	-.0853	-.0899	-.0873	-.0905	-.0955	-.1022	-.1072
c_c	.0157	.0146	.0120	.0117	.0114	.0097	.0103	.0103	.0105	.0122	.0134	.0129	.0137	.0142	.0155	.0159

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.185	1.189	1.199	1.203	1.204	1.208	1.211	1.214	1.217	1.220	1.222	1.225	1.230	1.233	1.236	1.239
.025	.423	.368	.226	.189	.144	.082	.044	.001	-.044	-.076	-.126	-.145	-.156	-.174	-.193	-.207
.050	.214	.162	.029	-.005	-.047	-.106	-.142	-.186	-.239	-.284	-.336	-.351	-.355	-.365	-.378	-.391
.100	.007	-.038	-.143	-.160	-.193	-.237	-.254	-.271	-.283	-.295	-.358	-.390	-.404	-.428	-.450	-.464
.200	-.111	-.151	-.254	-.280	-.307	-.324	-.346	-.408	-.434	-.443	-.474	-.497	-.506	-.514	-.525	-.541
.300	-.196	-.233	-.334	-.343	-.352	-.402	-.411	-.431	-.475	-.496	-.521	-.528	-.533	-.548	-.565	-.583
.400	-.273	-.310	-.372	-.391	-.427	-.451	-.477	-.493	-.525	-.548	-.580	-.587	-.590	-.601	-.612	-.623
.500	-.319	-.346	-.393	-.418	-.442	-.481	-.503	-.522	-.537	-.560	-.583	-.597	-.602	-.612	-.616	-.621
.600	[a]-.388	[a]-.390	[a]-.454	[a]-.478	[a]-.509	[a]-.534	[a]-.556	[a]-.583	[a]-.605	[a]-.621	[a]-.652	[a]-.635	[a]-.635	[a]-.659	[a]-.675	[a]-.680
.700	-.402	-.453	-.539	-.550	-.597	-.614	-.653	-.665	-.699	-.716	-.715	-.686	-.686	-.729	-.756	-.771
.800	[a]-.289	[a]-.321	[a]-.305	[a]-.284	[a]-.278	[a]-.259	[a]-.250	[a]-.240	[a]-.217	[a]-.282	[a]-.385	[a]-.350	[a]-.386	[a]-.415	[a]-.448	[a]-.456
.900	-.091	-.081	-.037	-.022	-.012	-.010	-.019	-.048	-.082	-.118	-.155	-.177	-.201	-.229	-.254	-.272
.950	.023	.033	.065	.074	.076	.062	.041	0	-.054	-.105	-.151	-.177	-.204	-.231	-.258	-.276
Lower surface																
.0375	[a]-.966	[a]-.806	[a]-.274	[a]-.198	[a]-.123	[a]-.045	.012	.070	.124	.163	[a].207	.250	.276	.309	.347	.376
.075	[a]-.730	[a]-.587	[a]-.171	-.128	[a]-.084	-.025	.016	.068	.113	.144	.177	.216	.236	.250	.293	.318
.150	-.153	-.154	-.093	-.069	-.040	-.007	.022	.052	.081	.105	.127	.155	.172	.194	.221	.241
.250	-.131	-.123	-.067	-.048	-.029	-.007	.013	.035	.053	.072	.086	.111	.123	.142	.164	.180
.350	-.120	-.108	-.067	-.054	-.041	-.025	-.009	.007	.022	.036	.045	.065	.074	.090	.110	.124
.450	-.098	-.088	-.059	-.049	-.040	-.030	-.019	-.008	.003	.012	.017	.034	.042	.054	.072	.084
.550	-.084	-.077	-.057	-.051	-.045	-.042	-.033	-.027	-.021	-.016	-.015	-.002	.004	.014	.028	.038
.650	-.059	-.054	-.040	-.036	-.034	-.035	-.031	-.030	-.030	-.033	-.037	-.027	-.025	-.019	-.007	.001
.750	-.045	-.042	-.036	-.034	-.037	-.042	-.043	-.050	-.058	-.067	-.079	-.078	-.080	-.079	-.073	-.067
.850	.029	.033	.036	.038	.032	.022	-.008	.003	-.015	-.032	-.050	-.055	-.061	-.064	-.058	-.054
.925	.073	.074	.073	.071	.063	.047	.034	.012	-.019	-.051	-.082	-.098	-.110	-.117	-.113	-.107
.975	[a].128	[a].122	[a].131	.135	.116	.058	.069	.024	[a]-.030	[a]-.078	[a]-.120	[a]-.144	[a]-.160	[a]-.178	[a]-.185	-.170
1.000	[a].158	[b].145	[a].160	.210	.145	[b].064	.087	.033	[a]-.040	[a]-.095	[a]-.150	[a]-.185	[a]-.214	[a]-.242	[a]-.267	[a]-.295

[a] Faired value.

[b] Lower surface only.

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS

OF AN NACA 16—305.30 PROPELLER BLADE SECTION (x = 0.85)

(j) One—blade propeller; M = 0.59; $\beta_{0.75R}$ = 45°.

J	2.513	2.468	2.425	2.377	2.335	2.298	2.258	2.219	2.183	2.148	2.108	2.074	2.043	2.018	2.002
M_x	.860	.868	.876	.886	.895	.901	.911	.920	.931	.940	.947	.957	.964	.972	.977
α_x'	-1.76	-1.24	-.74	-.17	.33	.79	1.28	1.77	2.23	2.69	3.21	3.66	4.08	4.42	4.64
$\Delta\beta$	-.55	-.40	-.25	-.09	.04	.15	.27	.39	.48	.57	.65	.72	.77	.80	.82
α_1	.03	.11	.37	.44	.57	.68	.77	.88	1.04	1.14	1.30	1.38	1.54	1.63	1.70
c_n	.0116	.0348	.1200	.1432	.1855	.2219	.2529	.2890	.3400	.3723	.4216	.4484	.4997	.5287	.5539
c_m	-.1155	-.1029	-.0860	-.0811	-.0811	-.0769	-.0713	-.0666	-.0768	-.0837	-.0910	-.0875	-.1032	-.1098	-.1152
c_c	.0175	.0161	.0159	.0141	.0148	.0163	.0161	.0161	.0178	.0186	.0192	.0178	.0201	.0208	.0211

Pressure coefficient, P

c/b															
Upper surface															
0.000	1.198	1.202	1.206	1.211	1.217	1.220	1.225	1.230	1.235	1.240	1.244	1.250	1.254	1.258	1.261
.025	.477	.434	.386	.342	.293	.238	.186	.048	.080	.036	-.014	-.046	-.070	-.080	-.083
.050	.253	.217	.170	.127	.083	.031	-.017	-.064	-.119	-.174	-.226	-.248	-.260	-.269	-.274
.100	.045	.011	-.035	-.072	-.104	-.133	-.159	-.180	-.199	-.207	-.262	-.298	-.320	-.349	-.357
.200	-.087	-.114	-.155	-.184	-.219	-.247	-.253	-.306	-.347	-.362	-.386	-.412	-.424	-.435	-.439
.300	-.179	-.210	-.255	-.277	-.287	-.306	-.339	-.348	-.392	-.416	-.436	-.447	-.463	-.477	-.483
.400	-.269	-.300	-.317	-.322	-.354	-.377	-.400	-.421	-.448	-.473	-.494	-.505	-.516	-.527	-.530
.500	[a]-.341	-.349	-.386	-.411	-.417	-.451	-.463	-.479	-.502	-.524	-.536	-.552	-.556	-.561	-.564
.600	[a]-.433	[a]-.439	-.460	[a]-.475	[a]-.485	[a]-.520	[a]-.536	[a]-.559	[a]-.571	[a]-.594	[a]-.603	-.621	-.622	-.629	-.620
.700	-.506	-.503	-.522	-.534	-.572	-.591	-.612	-.626	-.647	-.660	-.681	-.697	-.704	-.708	-.703
.800	[a]-.486	[a]-.421	-.331	-.355	-.323	-.306	[a]-.240	[a]-.240	[a]-.350	-.380	-.425	-.284	-.433	-.471	-.484
.900	-.062	-.039	-.045	-.015	-.038	-.070	-.096	-.119	-.153	-.191	-.223	-.259	-.305	-.327	-.359
.950	.061	.073	.079	.071	.033	-.018	-.062	-.101	-.145	-.186	-.224	-.259	-.302	-.321	-.343
Lower surface															
.0375	-.893	-.816	-.696	-.580	-.390	-.224	-.101	-.006	.073	.144	.218	.268	.311	.343	.370
.075	[a]-.860	[a]-.763	[a]-.358	[a]-.345	[a]-.250	[a]-.143	[a]-.061	[a].015	[a].069	[a].127	[a].191	[a].235	[a].269	[a].289	[a].315
.150	-.719	-.603	-.199	-.136	-.103	-.073	-.028	.017	.057	.099	.144	.176	.204	.226	.247
.250	-.099	-.098	-.110	-.101	-.075	-.053	-.021	.010	.037	.069	.104	.130	.152	.171	.189
.350	-.092	-.100	-.102	-.094	-.076	-.064	-.041	-.017	.004	.030	.059	.082	.100	.116	.132
.450	-.080	-.084	-.086	-.082	-.072	-.067	-.051	-.034	-.018	.003	.027	.046	.063	.077	.092
.550	-.073	-.074	-.077	-.077	-.073	-.075	-.066	-.055	-.046	-.030	-.010	.007	.021	.034	.046
.650	-.049	-.051	-.057	-.060	-.062	-.071	-.071	-.068	-.067	-.056	-.040	-.026	-.016	-.005	.006
.750	-.039	-.040	-.048	-.055	-.064	-.083	-.094	-.105	-.118	-.108	-.086	-.082	-.076	-.064	-.057
.850	.040	.037	.031	.020	.004	-.019	-.039	-.057	-.079	-.123	-.110	-.123	-.119	-.107	-.092
.925	[a].082	.079	.068	.051	.027	-.007	-.040	-.072	-.110	-.149	-.119	-.123	-.113	-.135	[a]-.125
.975	[a].220	[a].125	[a].116	[a].110	[a].055	[a]-.002	[a]-.035	[a]-.087	[a]-.135	[b]-.166	[a]-.157	[a]-.148	[b]-.148	[a]-.142	[b]-.140
1.000	[a].400	[a].160	[a].140	[a].170	[b].079	[b]0	[a]-.035	[a]-.095	[a]-.147	[b]-.166	[b]-.177	[b]-.166	[b]-.160	[b]-.155	[b]-.140

[a] Faired value.
[b] Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.30 PROPELLER BLADE SECTION (x = 0.85) — Continued

(k) One–blade propeller; M = 0.61; $\beta_{0.75R} = 45°$.

J	2.365	2.334	2.317	2.281	2.254	2.233	2.213	2.183	2.162	2.134	2.123	2.098	2.083	2.053	2.039	2.020	2.001	1.977
M_x	.913	.919	.928	.930	.937	.946	.951	.957	.963	.971	.979	.981	.990	.993	1.002	1.008	1.014	1.020
α_x'	−.03	.35	.55	1.00	1.33	1.60	1.85	2.23	2.52	2.87	3.01	3.34	3.54	3.95	4.14	4.39	4.65	4.99
$\Delta\beta$	−.22	−.11	−.04	.10	.20	.29	.31	.38	.41	.43	.44	.49	.51	.59	.63	.68	.75	.84
α_1	.58	.67	.68	.77	.83	.91	.92	1.03	1.12	1.22	1.30	1.35	1.46	1.55	1.63	1.71	1.76	1.84
c_n	.1884	.2187	.2206	.2490	.2723	.2974	.3019	.3368	.3652	.3968	.4219	.4387	.4697	.5006	.5265	.5535	.5677	.5955
c_m	−.1121	−.1144	−.1026	−.0995	−.0978	−.0977	−.0949	−.1006	−.1003	−.1014	−.1057	−.1106	−.1168	−.1311	−.1395	−.1463	−.1444	−.1560
c_c	.0235	.0240	.0247	.0245	.0247	.0257	.0256	.0267	.0267	.0275	.0280	.0283	.0286	.0315	.0326	.0338	.0340	.0350
c/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.225	1.229	1.234	1.235	1.239	1.244	1.247	1.251	1.254	1.258	1.263	1.264	1.269	1.272	1.275	1.279	1.283	1.287
.025	.361	.327	.312	.267	.232	.210	.189	.151	.124	.100	.082	.067	.047	.030	.019	.005	−.008	−.024
.050	.146	.117	.103	.061	.031	.010	−.009	−.045	−.075	−.104	−.131	−.147	−.162	−.174	−.180	−.186	−.195	−.202
.100	−.066	−.077	−.077	−.105	−.124	−.134	−.137	−.150	−.156	−.159	−.168	−.187	−.215	−.236	−.248	−.258	−.270	−.282
.200	−.182	−.199	−.198	−.215	−.223	−.245	−.271	−.300	−.313	−.320	−.325	−.328	−.343	−.357	−.362	−.369	−.377	−.382
.300	−.259	−.261	−.260	−.297	−.310	−.311	−.321	−.352	−.366	−.376	−.382	−.381	−.389	−.400	−.407	−.415	−.423	−.428
.400	−.365	−.336	−.330	−.345	−.361	−.368	−.370	−.385	−.397	−.401	−.406	−.406	−.409	−.412	−.409	−.404	−.400	−.392
.500	−.364	−.381	−.382	−.399	−.410	−.417	−.420	−.436	−.446	−.452	−.457	−.456	−.462	−.466	−.466	−.466	−.469	−.469
.600	−.641	−.619	−.599	−.588	−.568	−.550	−.531	−.519	−.501	−.485	−.467	−.451	−.437	−.425	−.409	−.392	−.377	−.361
.700	−.571	−.570	−.569	−.584	−.588	−.596	−.599	−.613	−.614	−.618	−.625	−.626	−.632	−.638	−.636	−.634	−.635	−.634
.800	−.719	−.713	−.706	−.724	−.725	−.725	−.723	−.736	−.742	−.744	−.744	−.742	−.744	−.751	−.748	−.747	−.746	−.741
.900	−.131	−.138	−.145	−.173	−.187	−.209	−.228	−.280	−.302	−.354	−.417	−.469	−.549	−.715	−.768	−.776	−.777	−.771
.950	−.084	−.103	−.115	−.143	−.158	−.181	−.199	−.240	−.253	−.290	−.319	−.339	−.373	−.512	−.605	−.672	−.750	−.767
Lower surface																		
.0375	−.492	−.425	−.366	−.258	−.154	−.085	−.034	.025	.074	.120	.159	.195	.222	.253	.287	.321	.348	.382
.075	−.414	−.315	−.240	−.135	−.058	−.010	.026	.070	.107	.143	.173	.204	.224	.249	.279	.307	.328	.357
.150	−.225	−.142	−.117	−.087	−.049	−.021	.003	.033	.061	.088	.112	.135	.151	.171	.196	.220	.237	.262
.250	−.100	−.085	−.068	−.054	−.030	−.010	.005	.027	.048	.069	.087	.108	.119	.133	.156	.177	.189	.213
.350	−.107	−.097	−.085	−.078	−.060	−.002	−.032	−.018	.001	.016	.032	.051	.059	.073	.091	.111	.122	.143
.450	−.087	−.082	−.073	−.072	−.056	−.002	−.034	−.025	−.010	.004	.018	.032	.040	.050	.068	.086	.096	.115
.550	−.095	−.095	−.090	−.093	−.083	−.073	−.066	−.059	−.045	−.035	−.023	−.010	−.004	.005	.021	.036	.045	.064
.650	−.086	−.088	−.086	−.094	−.088	−.082	−.078	−.075	−.063	−.055	−.042	−.034	−.030	−.025	−.009	.006	.014	.031
.750	−.095	−.105	−.111	−.128	−.133	−.136	−.139	−.141	−.132	−.126	−.119	−.109	−.103	−.098	−.085	−.070	−.062	−.047
.850	−.028	−.039	−.046	−.066	−.074	−.083	−.091	−.100	−.098	−.099	−.100	−.092	−.094	−.096	−.084	−.070	−.066	−.049
.925	−.019	−.035	−.048	−.076	−.092	−.110	−.119	−.128	−.122	−.123	−.121	−.114	−.115	−.118	−.107	−.094	−.092	−.077
.975	[a]−.038	[a]−.038	[a]−.080	[a]−.118	[a]−.130	[a]−.160	[a]−.159	[a]−.191	[a]−.172	[a]−.168	[a]−.160	[a]−.150	[a]−.152	[a]−.158	[a]−.132	[a]−.120	[a]−.132	[a]−.120
1.000	[b]−.049	[b]−.040	[b]−.100	[a]−.139	[a]−.151	[a]−.185	[a]−.180	[a]−.230	[a]−.208	[b]−.190	[b]−.180	[b]−.170	[a]−.175	[a]−.177	[a]−.150	[a]−.130	[a]−.155	[a]−.141

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 9.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–305.30 PROPELLER BLADE SECTION (x = 0.85) — Concluded

(*l*) One—blade propeller; M = 0.64; $\beta_{0.75R}$ = 45°.

J	2.336	2.308	2.282	2.259	2.239	2.218	2.191	2.173	2.150	2.125	2.106	2.094	2.063	2.035	2.019
M_x	.977	.980	.985	.991	.996	1.002	1.007	1.016	1.019	1.025	1.030	1.037	1.043	1.053	1.058
α_x'	.32	.66	.98	1.27	1.52	1.79	2.13	2.36	2.66	2.99	3.24	3.40	3.81	4.19	4.41
$\Delta\beta$	-.52	-.43	-.34	-.26	-.20	-.13	-.04	.02	.09	.17	.23	.26	.35	.43	.48
α_1	.23	.30	.39	.54	.66	.79	.84	.95	1.00	1.09	1.16	1.24	1.34	1.44	1.48
c_n	.0761	.0984	.1284	.1768	.2165	.2574	.2748	.3103	.3265	.3548	.3781	.4061	.4342	.4665	.4806
c_m	-.1018	-.1026	-.1044	-.1114	-.1195	-.1293	-.1275	-.1322	-.1319	-.1156	-.1372	-.1398	-.1438	-.1446	-.1454
c_c	.0326	.0331	.0343	.0361	.0384	.0402	.0402	.0398	.0393	.0392	.0390	.0388	.0375	.0362	.0356

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.261	1.263	1.266	1.270	1.273	1.276	1.279	1.285	1.286	1.290	1.293	1.298	1.302	1.308	1.312
.025	.421	.404	.392	.358	.333	.316	.299	.271	.253	.227	.200	.183	.162	.132	.120
.050	.210	.197	.187	.155	.132	.115	.099	.072	.051	.025	-.006	-.028	-.048	-.069	-.077
.100	.012	-.003	-.011	-.029	-.035	-.038	-.037	-.046	-.051	-.053	-.062	-.077	-.104	-.137	-.150
.200	-.104	-.103	-.102	-.111	-.131	-.158	-.171	-.192	-.201	-.208	-.218	-.228	-.238	-.258	-.268
.300	-.165	-.175	-.184	-.203	-.209	-.214	-.222	-.247	-.260	-.268	-.277	-.282	-.288	-.306	-.316
.400	-.249	-.250	-.255	-.274	-.286	-.290	-.289	-.303	-.311	-.313	-.318	-.327	-.327	-.323	-.326
.500	-.303	-.303	-.303	-.318	-.328	-.332	-.331	-.342	-.350	-.355	-.363	-.366	-.367	-.375	-.380
.600	-.380	-.380	-.379	-.391	-.400	-.405	-.403	-.412	-.418	-.419	-.423	-.430	-.423	-.409	-.404
.700	-.485	-.485	-.484	-.494	-.503	-.508	-.503	-.508	-.513	-.517	-.524	-.529	-.530	-.536	-.541
.800	-.624	-.624	-.621	-.625	-.630	-.635	-.631	-.635	-.636	-.634	-.638	-.641	-.642	-.643	-.648
.900	-.596	-.637	-.665	-.691	-.694	-.698	-.689	-.691	-.692	-.690	-.691	-.694	-.689	-.684	-.686
.950	-.230	-.259	-.303	-.479	-.659	-.708	-.707	-.708	-.707	-.701	-.701	-.703	-.699	-.690	-.690
Lower surface															
.0375	-.376	-.346	-.305	-.235	-.174	-.123	-.069	.009	.049	.101	.155	.203	.250	.304	.315
.075	-.333	-.304	-.267	-.198	-.123	-.062	-.005	.064	.094	.135	.179	.217	.254	.298	.308
.150	-.310	-.279	-.226	-.138	-.075	-.038	-.005	.037	.059	.089	.122	.156	.185	.223	.228
.250	-.260	-.177	-.125	-.076	-.041	-.020	.004	.033	.049	.073	.099	.125	.172	.181	.186
.350	-.137	-.122	-.104	-.084	-.065	-.048	-.027	-.004	.009	.028	.049	.073	.094	.119	.123
.450	-.140	-.122	-.102	-.083	-.065	-.052	-.034	-.015	-.005	.013	.031	.053	.075	.097	.100
.550	-.132	-.117	-.102	-.091	-.078	-.068	-.055	-.040	-.031	-.018	-.002	.016	.034	.054	.056
.650	-.132	-.126	-.118	-.115	-.108	-.099	-.086	-.072	-.064	-.050	-.036	-.017	.002	.022	.024
.750	[a]-.135	[a]-.138	[a]-.131	[a]-.135	[a]-.134	[a]-.123	[a]-.118	[a]-.100	[a]-.100	[a]-.082	[a]-.072	[a]-.068	[a]-.037	[a]-.020	[a]-.017
.850	-.138	-.150	-.151	-.162	-.161	-.158	-.145	-.136	-.129	-.118	-.107	-.092	-.075	-.057	-.056
.925	-.141	-.156	-.164	-.183	-.186	-.185	-.173	-.164	-.159	-.148	-.140	-.125	-.107	-.090	-.090
.975	[a]-.147	[a]-.163	[a]-.176	[a]-.198	[a]-.206	[a]-.205	[a]-.191	[a]-.181	[a]-.174	[a]-.162	[a]-.153	[a]-.144	[a]-.125	[a]-.111	[a]-.109
1.000	[a]-.148	[a]-.166	[a]-.181	[b]-.205	[b]-.213	[b]-.211	[b]-.199	[b]-.192	[b]-.182	[b]-.170	[b]-.162	[b]-.153	[b]-.133	[b]-.121	[b]-.119

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 10.– PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–304.80 PROPELLER BLADE SECTION (x = 0.90)

(a) N = 1140 rpm; $\beta_{0.75R}$ = 45°.

	J	1.628	1.700	1.804	1.855	1.957	2.058	2.141	2.238	2.334	2.490	2.583	2.438	2.319	2.206	2.079	1.999	1.931	1.814	1.734	1.674
	M_x	.553	.561	.576	.575	.585	.598	.619	.615	.625	.646	.654	.638	.628	.613	.599	.588	.581	.574	.567	.561
	α_x'	9.77	8.68	7.16	6.43	5.01	3.65	2.57	1.34	.16	-1.67	-2.71	-1.07	.34	1.74	3.37	4.44	5.37	7.02	8.18	9.07
	$\Delta\beta$	1.10	1.00	.87	.80	.65	.50	.41	.27	.11	-.10	-.20	-.04	.14	.32	.48	.58	.69	.85	.95	1.03
	α_i	3.37	3.21	2.92	2.74	2.31	1.94	1.57	1.21	.69	.30	-.02	.45	.82	1.29	1.78	2.12	2.45	2.85	3.07	3.22
	c_n	.7454	.7103	.6458	.6079	.5133	.4303	.3487	.2706	.1552	.0661	-.0055	.1016	.1839	.2881	.3968	.4699	.5446	.6307	.6799	.7137
	c_m	-.0223	-.0167	-.0213	-.0270	-.0366	-.0400	-.0396	-.0427	-.0559	-.0557	-.0598	-.0559	-.0515	-.0389	-.0415	-.0392	-.0353	-.0244	-.0175	-.0201
	c_c																				

	c/b	Pressure coefficient, P																			
Upper surface	0.000	1.079	1.081	1.085	1.085	1.088	1.092	1.099	1.098	1.101	1.108	1.112	1.107	1.102	1.097	1.092	1.089	1.087	1.084	1.082	1.081
	.025	-1.500	-1.550	-1.609	-1.769	-1.132	-.861	-.592	-.352	-.044	.196	.339	.103	-.108	-.424	-.783	-.983	-1.440	-1.667	-1.620	-1.410
	.050	-1.428	-1.513	-1.550	-1.431	-.857	-.669	-.485	-.321	-.112	.073	.220	.003	-.152	-.369	-.612	-.778	-1.005	-1.570	-1.563	-1.381
	.100	-1.287	-1.370	-1.264	-.876	-.668	-.542	-.421	-.315	-.176	-.038	.049	-.091	-.202	-.350	-.513	-.619	-.716	-1.164	-1.329	-1.290
	.200	-.983	-.922	-.652	-.559	-.499	-.418	-.344	-.291	-.218	-.120	-.064	-.156	-.226	-.313	-.405	-.468	-.525	-.595	-.798	-.968
	.300	-.739	-.624	-.489	-.494	-.457	-.402	-.355	-.312	-.256	-.181	-.139	-.206	-.257	-.327	-.398	-.438	-.474	-.490	-.549	-.678
	.400	-.549	-.462	-.416	-.435	-.402	-.364	-.328	-.300	-.267	-.209	-.177	-.224	-.262	-.316	-.362	-.392	-.418	-.428	-.433	-.487
	.500	-.409	-.366	-.357	-.380	-.358	-.329	-.303	-.286	-.265	-.217	-.197	-.231	-.257	-.299	-.333	-.353	-.370	-.376	-.363	-.367
	.600	-.332	-.317	-.332	-.362	-.354	-.336	-.317	-.312	-.300	-.261	-.250	-.271	-.290	-.286	-.342	-.351	-.359	-.355	-.326	-.305
	.700	-.264	-.256	-.273	-.303	-.302	-.291	-.278	-.279	-.286	-.255	-.250	-.261	-.272	-.285	-.298	-.302	-.304	-.293	-.264	-.240
	.800	-.180	-.187	-.199	-.228	-.233	-.229	-.224	-.235	-.246	-.220	-.221	-.224	-.233	-.241	-.242	-.235	-.235	-.220	-.191	-.176
	.900	-.126	-.091	-.077	-.088	-.083	-.085	-.082	-.093	-.141	-.161	-.160	-.158	-.115	-.098	-.096	-.091	-.089	-.087	-.084	-.097
	.950	-.101	-.051	-.020	-.017	-.007	-.007	-.001	-.015	-.042	-.020	-.023	-.024	-.032	-.017	-.015	-.013	-.015	-.023	-.037	-.066
Lower surface	.0375	.667	.630	.576	.539	.456	.344	.227	.087	-.145	-.310	-.505	-.219	-.077	.120	.294	.405	.484	.560	.606	.638
	.075	.516	.486	.435	.398	.329	.239	.150	.045	-.129	-.250	-.355	-.193	-.073	.069	.196	.287	.352	.419	.461	.495
	.150	.374	.347	.309	.278	.225	.161	.097	.024	-.112	-.183	-.253	-.148	-.072	.036	.125	.190	.239	.292	.327	.357
	.250	.285	.261	.235	.210	.169	.122	.072	.010	-.077	-.120	-.171	-.097	-.051	.020	.093	.143	.180	.221	.248	.272
	.350	.216	.200	.178	.156	.120	.073	.029	-.018	-.075	-.104	-.139	-.089	-.053	-.013	.044	.097	.131	.163	.190	.198
	.450	.168	.155	.139	.112	.084	.051	.022	-.011	-.060	-.078	-.107	-.066	-.041	-.010	.029	.064	.092	.122	.146	.161
	.550	.105	.094	.080	.060	.038	.017	-.007	-.034	-.070	-.079	-.100	-.072	-.055	-.035	-.002	.024	.043	.066	.086	.103
	.650	.067	.065	.061	.044	.032	.015	-.001	-.025	-.054	-.060	-.075	-.056	-.039	-.027	-.002	.020	.032	.050	.061	.070
	.750	.031	.039	.043	.033	.027	.015	0	-.016	-.037	-.038	-.049	-.036	-.025	-.020	-.002	.015	.025	.034	.038	.039
	.850	a-.003	a.015	a.034	a.039	a.036	a.020	.015	a.009	a-.002	a.005	a-.002	a.004	a.010	a.004	a.008	.020	.030	.026	.013	-.002
	.925	-.015	.014	.039	.044	.048	.050	.049	.043	.048	.058	.055	.056	.055	.034	.036	.041	.043	.037	.027	.002
	.975	a-.033	a.010	a.037	a.046	a.048	a.084	a.073	a.060	a.077	a.120	a.094	a.095	a.087	a.055	a.050	.058	a.049	a.045	a.030	a.001
	1.000	a-.047	a.010	a.037	a.045	a.047	a.104	a.086	a.069	a.089	a.170	a.114	a.118	a.105	a.065	a.059	.066	a.052	a.054	a.035	a-.002

aFaired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16—304.80 PROPELLER BLADE SECTION (x = 0.90) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

J	1.771	1.901	1.983	2.096	2.181	2.271	2.350	2.418	2.492	2.567	2.530	2.447	2.380	2.284	2.201	2.114	2.023	1.927	1.830
M_x	.675	.691	.698	.717	.725	.735	.743	.754	.762	.775	.770	.756	.750	.736	.718	.715	.708	.690	.680
α_x'	7.64	5.79	4.66	3.15	2.05	.93	−.03	−.84	−1.69	−2.54	−2.12	−1.17	−.39	.77	1.80	2.92	4.12	5.42	6.79
$\Delta\beta$	1.41	1.17	1.09	.61	.47	.32	.13	−.04	−.19	−.28	−.24	−.11	.06	.29	.46	.61	.81	1.10	1.33
α_1	3.43	2.93	2.58	1.98	1.53	1.18	.88	.56	.34	−.05	.19	.45	.71	1.13	1.47	1.90	2.30	2.78	3.30
c_n	.7612	.6530	.5753	.4413	.3403	.2639	.1971	.1255	.0777	−.0123	.0426	.1000	.1574	.2516	.3284	.4227	.5116	.6171	.7348
c_m	−.0214	−.0249	−.0517	−.0554	−.0454	−.0492	−.0530	−.0583	−.0600	−.0728	−.0667	−.0590	−.0585	−.0516	−.0420	−.0523	−.0472	−.0346	−.0135
c_c																			

c/b	Pressure coefficient, P																		
0.000	1.119	1.126	1.129	1.136	1.139	1.143	1.146	1.151	1.154	1.160	1.158	1.151	1.149	1.143	1.137	1.135	1.132	1.125	1.121
.025	−2.167	−1.857	−1.579	−.900	−.538	−.262	−.049	.121	.250	.360	.313	.176	.030	−.213	−.452	−.797	−1.295	−1.798	−2.066
.050	−2.020	−1.736	−1.390	−.681	−.466	−.276	−.117	.013	.119	.214	.172	.059	−.057	−.238	−.409	−.617	−.919	−1.655	−1.948
.100	−1.632	−1.133	−.594	−.564	−.428	−.303	−.192	−.124	−.016	.060	.027	−.063	−.148	−.280	−.389	−.527	−.632	−.753	−1.708
.200	−.634	−.511	−.523	−.449	−.369	−.295	−.228	−.169	−.114	−.061	−.083	−.145	−.202	−.282	−.344	−.424	−.493	−.515	−.497
.300	−.576	−.511	−.495	−.438	−.388	−.339	−.295	−.256	−.216	−.178	−.190	−.236	−.275	−.329	−.369	−.420	−.467	−.500	−.497
.400	−.483	−.453	−.436	−.395	−.358	−.322	−.293	−.268	−.238	−.211	−.221	−.254	−.279	−.317	−.344	−.380	−.411	−.441	−.446
.500	−.415	−.416	−.405	−.375	−.352	−.329	−.309	−.293	−.273	−.258	−.263	−.285	−.302	−.326	−.341	−.366	−.385	−.407	−.411
.600	−.366	−.397	−.395	−.378	−.360	−.350	−.340	−.333	−.321	−.315	−.315	−.327	−.336	−.351	−.355	−.369	−.381	−.389	−.386
.700	−.292	−.333	−.337	−.329	−.318	−.314	−.312	−.310	−.305	−.306	−.303	−.307	−.310	−.315	−.313	−.321	−.325	−.327	−.319
.800	−.206	−.249	−.255	−.256	−.249	−.253	−.258	−.262	−.263	−.268	−.263	−.262	−.259	−.259	−.249	−.251	−.251	−.244	−.233
.900	−.077	−.090	−.093	−.094	−.084	−.091	−.095	−.097	−.100	−.105	−.102	−.100	−.097	−.096	−.083	−.090	−.090	−.084	−.083
.950	−.018	−.010	−.010	−.006	.008	.003	−.003	−.007	−.006	−.013	−.008	−.006	−.003	−.002	.010	−.001	−.006	−.005	.008

.0375	.623	.518	.449	.306	.179	.032	−.117	−.214	−.327	−1.156	−.953	−.260	−.181	−.004	.140	.279	.407	.507	.587
.075	.480	.385	.324	.209	.114	.009	−.103	−.212	−.277	−.509	−.261	−.246	−.154	−.018	.084	.190	.293	.376	.445
.150	.342	.267	.221	.135	.069	−.011	−.100	−.158	−.211	−.219	−.227	−.183	−.134	−.036	.050	.121	.198	.261	.317
.250	.262	.209	.168	.104	.050	−.008	−.060	−.100	−.134	−.163	−.154	−.116	−.078	−.027	.041	.094	.152	.199	.243
.350	.196	.150	.123	.072	.005	−.027	−.062	−.092	−.114	−.140	−.130	−.103	−.075	−.044	.018	.066	.111	.149	.185
.450	.154	.116	.093	.053	.005	−.022	−.049	−.068	−.084	−.107	−.096	−.076	−.057	−.031	.011	.049	.086	.115	.146
.550	.107	.077	.060	.026	−.023	−.042	−.062	−.076	−.087	−.104	−.096	−.082	−.067	−.051	−.008	.024	.055	.078	.101
.650	.081	.059	.046	.020	−.018	−.033	−.049	−.059	−.066	−.077	−.070	−.062	−.051	−.040	−.008	.017	.044	.063	.080
.750	.044	.039	.032	.011	−.013	−.023	−.034	−.039	−.041	−.048	−.044	−.040	−.035	−.030	−.011	.010	.032	.043	.057
.850	[a].025	[a].051	[a].051	[a].030	[a]0	[a].005	[a].005	[a].009	[a].007	[a].001	[a].004	[a].002	[a].007	[a].010	[a].007	[a].029	[a].043	[a].052	[a].061
.925	[a].034	[a].056	[a].063	[a].053	[a].036	[a].044	[a].047	[a].051	[a].056	[a].053	[a].055	[a].051	[a].051	[a].042	[a].039	[a].053	[a].069	[a].063	[a].063
.975	[a].040	[a].058	[a].071	[a].090	[a].061	[a].077	[a].078	[a].079	[a].085	[a].088	[a].082	[a].086	[a].087	[a].086	[a].079	[a].079	[a].085	[a].074	[a].062
1.000	[a].040	[a].060	[a].078	[a].110	[a].075	[a].095	[a].097	[a].090	[a].099	[a].104	[a].100	[a].107	[a].108	[a].100	[a].106	[a].093	[a].098	[a].079	[a].062

[a]Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–304.80 PROPELLER BLADE SECTION (x = 0.90) — Continued

(c) N = 1500 rpm; $\beta_{0.75R}$ = 45°.

J	1.995	2.081	2.178	2.300	2.426	2.527	2.550	2.479	2.377	2.258	2.147	2.058
M_x	.794	.806	.818	.836	.854	.869	.872	.862	.843	.824	.807	.798
$\alpha_x{}'$	4.49	3.35	2.09	.57	-.92	-2.09	-2.34	-1.53	-.32	1.17	2.62	3.79
$\Delta\beta$	1.39	.92	.59	.12	-.29	-.59	-.66	-.45	-.14	.29	.73	1.12
α_1	2.72	2.24	1.72	1.17	.56	-.03	-.14	.31	.84	1.35	1.88	2.40
c_n	.6058	.4974	.3835	.2610	.1255	-.0077	-.0310	.0690	.1877	.3026	.4187	.5342
c_m	-.0351	-.0418	-.0517	-.0607	-.0751	-.0903	-.0965	-.0842	-.0697	-.0578	-.0480	-.0429
c_c	-.0146	-.0073	.0006	.0081						.0063	-.0014	-.0087

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.168	1.173	1.193	1.187	1.196	1.203	1.204	1.199	1.190	1.182	1.173	1.170
.025	-1.057	-.772	-.482	-.100	.194	.358	.395	.288	.079	-.237	-.597	-.856
.050	-1.057	-.823	-.533	-.176	.069	.215	.249	.152	-.026	-.285	-.688	-.918
.100	-1.019	-.811	-.497	-.261	-.065	.060	.091	.005	-.143	-.346	-.580	-.866
.200	-.972	-.755	-.451	-.304	-.169	-.074	-.051	-.116	-.225	-.353	-.462	-.821
.300	-.666	-.405	-.451	-.376	-.283	-.210	-.189	-.240	-.303	-.404	-.466	-.383
.400	-.310	-.405	-.412	-.365	-.311	-.260	-.246	-.281	-.332	-.380	-.422	-.401
.500	-.370	-.401	-.392	-.358	-.326	-.292	-.283	-.308	-.340	-.372	-.402	-.406
.600	-.417	-.433	-.446	-.450	-.424	-.389	-.382	-.408	-.440	-.447	-.440	-.433
.700	-.362	-.368	-.378	-.390	-.469	-.487	-.480	-.497	-.409	-.387	-.377	-.370
.800	-.262	-.259	-.268	-.273	-.277	-.279	-.341	-.277	-.285	-.279	-.269	-.264
.900	-.070	-.067	-.068	-.067	-.069	-.057	-.053	-.070	-.076	-.077	-.073	-.076
.950	.021	.027	.028	.035	.033	.042	.046	.033	.028	.026	.024	.024
Lower surface												
.0375	.433	.323	.171	-.046	-.608	-.853	-.904	-.810	-.209	.040	.236	.370
.075	.320	.226	.108	-.056	-.267	-.784	-.843	-.732	-.176	.011	.156	.264
.150	.222	.151	.065	-.064	-.163	-.714	-.796	-.197	-.136	-.032	.096	.176
.250	.170	.117	.043	-.033	-.106	-.266	-.266	-.096	-.081	-.010	.074	.136
.350	.110	.076	.001	-.044	-.099	-.063	-.025	-.104	-.081	-.029	.045	.093
.450	.082	.044	-.001	-.036	-.077	-.066	-.043	-.084	-.064	-.025	.014	.066
.550	.032	-.001	-.030	-.055	-.086	-.087	-.076	-.093	-.078	-.049	-.029	.023
.650	.027	-.001	-.026	-.044	-.065	-.069	-.062	-.070	-.060	-.039	-.024	.004
.750	.020	-.003	-.022	-.032	-.043	-.043	-.039	-.045	-.041	-.032	-.022	.001
.850	[a].030	[a].006	[a].011	[a].009	[a].010	[a]0	[a].018	[a].012	[a].011	[a].011	[a]0	[a].020
.925	.061	.048	.048	.059	.067	.074	.078	.072	.064	.057	.041	.051
.975	[a].109	[a].112	[a].081	[a].103	[a].115	[a].133	[a].125	[a].118	[a].103	[a].104	[a].080	[a].087
1.000	[a].140	[a].151	[a].100	[a].127	[a].140	[a].164	[a].152	[a].149	[a].115	[a].129	[a].102	[a].104

[a] Faired value.

CONFIDENTIAL

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.80 PROPELLER BLADE SECTION (x = 0.90) — Continued

(d) N = 1600 rpm; $\beta_{0.75R}$ = 45°.

	J	2.078	2.184	2.288	2.383	2.481	2.537	2.442	2.339	2.227	2.123
	M_x	.848	.864	.877	.892	.907	.918	.901	.880	.865	.848
	α_x'	2.99	2.02	.72	−.43	−1.57	−2.20	−1.12	−.10	1.47	2.80
	$\Delta\beta$	1.20	.77	.36	−.13	−.73	−1.09	−.49	.12	.60	1.02
	α_1	2.41	1.80	1.27	.80	.11	−.26	.40	1.05	1.57	2.08
	c_n	.5394	.4019	.2842	.1800	.0235	−.0590	.0900	.2355	.3519	.4645
	c_m	−.0526	−.0539	−.0653	−.0919	−.1066	−.1082	−.0997	−.0824	−.0602	−.0501
	c_c	−.0068	−.0001	.0077	.0146	.0181	.0204	.0163	.0122	.0041	−.0036
	c/b	Pressure coefficient, P

	c/b					Pressure coefficient, P					
Upper surface	0.000	1.192	1.200	1.207	1.215	1.223	1.228	1.219	1.208	1.200	1.192
	.025	−.605	−.369	−.064	.183	.355	.419	.281	.070	−.239	−.504
	.050	−.670	−.458	−.142	.071	.224	.282	.159	−.021	−.293	−.603
	.100	−.688	−.431	−.248	−.070	.067	.122	.007	−.154	−.352	−.605
	.200	−.691	−.510	−.320	−.178	−.067	−.019	−.117	−.246	−.438	−.610
	.300	−.790	−.605	−.408	−.303	−.217	−.174	−.257	−.355	−.486	−.691
	.400	−.800	−.550	−.412	−.353	−.289	−.258	−.317	−.396	−.418	−.547
	.500	−.287	−.309	−.405	−.367	−.337	−.304	−.344	−.379	−.383	−.321
	.600	−.363	−.423	−.460	−.441	−.418	−.389	−.406	−.450	−.427	−.452
	.700	−.362	−.518	−.485	−.486	−.474	−.471	−.463	−.487	−.531	−.411
	.800	−.244	−.225	−.326	−.581	−.568	−.581	−.575	−.550	−.233	−.256
	.900	−.046	−.032	−.026	−.040	−.080	−.088	−.067	−.033	−.044	−.053
	.950	.046	.059	.066	.069	.052	.028	.063	.064	.051	.040
Lower surface	.0375	.329	.183	−.034	−.530	−.714	−.767	−.655	−.213	.087	.258
	.075	.235	.123	−.042	−.364	−.677	−.723	−.614	−.150	.046	.177
	.150	.159	.059	−.060	−.128	−.679	−.697	−.504	−.122	.007	.114
	.250	.148	.045	−.030	−.089	−.473	−.643	−.050	−.072	.003	.086
	.350	.085	.014	−.044	−.089	−.015	−.473	−.070	−.074	−.021	.048
	.450	.064	.013	−.032	−.070	−.013	.034	−.063	−.058	−.018	.031
	.550	.033	−.022	−.058	−.087	−.058	.001	−.087	−.077	−.021	−.003
	.650	.021	−.020	−.047	−.067	−.058	−.022	−.070	−.060	−.017	−.007
	.750	.011	−.017	−.036	−.040	−.047	−.027	−.049	−.042	−.009	−.014
	.850	[a].024	[a].002	[a].006	[a].023	[a].002	[a].007	[a].008	[a].013	[a].014	[a].009
	.925	.061	.061	.067	.095	.066	.060	.075	.074	.061	.048
	.975	[a].146	[a].118	[a].128	[a].138	[a].134	[a].105	[a].135	[a].123	[a].106	[a].100
	1.000	[a].209	[a].150	[a].165	[a].160	[a].169	[b].133	[a].170	[a].145	[a].133	[a].132

[a]Faired value.

CONFIDENTIAL

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.80 PROPELLER BLADE SECTION (x = 0.90) — Continued

(e) N = 0.56 rpm; $\beta_{0.75R} = 45°$.

J	2.115	2.147	2.179	2.214	2.255	2.288	2.325	2.349	2.384	2.426	2.457	2.493	2.541
M_x	.940	.928	.919	.910	.903	.892	.883	.878	.870	.864	.858	.851	.839
a_x'	2.91	2.49	2.09	1.64	1.13	.72	.27	-.01	-.44	-.94	-1.29	-1.71	-2.24
$\Delta\beta$	.84	.73	.62	.49	.36	.26	.14	.06	-.07	-.21	-.31	-.43	-.57
α_1	1.91	1.85	1.73	1.68	1.49	1.28	1.06	.90	.73	.53	.39	.20	-.16
c_n	.4242	.4132	.3858	.3758	.3332	.2868	.2361	.2003	.1629	.1197	.0871	.0445	-.0355
c_m	-.0746	-.0782	-.0824	-.0882	-.0859	-.0801	-.0782	-.0791	-.0774	-.0733	-.0760	-.0816	-.0765
c_c	.0106	.0107	.0116	.0119	.0116	.0111	.0120						

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.241	1.234	1.229	1.224	1.221	1.215	1.210	1.207	1.203	1.200	1.197	1.194	1.188
.025	-.201	-.174	-.147	-.104	-.045	.007	.073	.120	.181	.242	.281	.326	.390
.050	-.309	-.286	-.241	-.186	-.129	-.086	-.031	.009	.060	.112	.145	.184	.241
.100	-.322	-.283	-.260	-.244	-.220	-.195	-.150	-.117	-.074	-.029	.001	.036	.086
.200	-.390	-.383	-.382	-.362	-.329	-.297	-.254	-.225	-.181	-.138	-.114	-.088	-.050
.300	-.490	-.474	-.459	-.447	-.417	-.364	-.337	-.312	-.288	-.257	-.233	-.203	-.157
.400	-.541	-.502	-.490	-.485	-.441	-.390	-.361	-.347	-.317	-.295	-.275	-.248	-.207
.500	-.572	-.543	-.518	-.485	-.445	-.432	-.378	-.369	-.319	-.301	-.292	-.277	-.246
.600	-.565	-.547	-.533	-.506	-.479	-.453	-.430	-.391	-.382	-.389	-.395	-.388	-.343
.700	-.587	-.578	-.569	-.548	-.530	-.504	-.467	-.472	-.489	-.491	-.463	-.395	-.347
.800	-.394	-.518	-.550	-.544	-.519	-.467	-.423	-.436	-.338	-.241	-.268	-.284	-.271
.900	-.107	-.067	-.040	-.039	-.024	-.020	.001	.015	-.026	-.048	-.061	-.068	-.090
.950	-.085	-.028	.030	.075	.097	.100	.091	.067	.054	.051	.041	.031	.018
Lower surface													
.0375	.243	.190	.141	.084	.017	-.055	-.157	-.298	-.498	-.667	-.755	-.849	-.995
.075	.180	.136	.096	.053	.001	-.054	-.115	-.147	-.197	-.461	-.645	-.771	-.913
.150	.098	.064	.033	.001	-.030	-.064	-.094	-.121	-.137	-.120	-.109	-.195	-.486
.250	.085	.060	.039	.016	-.004	-.026	-.050	-.068	-.083	-.088	-.089	-.081	-.061
.350	.042	.024	.007	-.008	-.023	-.038	-.054	-.068	-.076	-.085	-.090	-.093	-.088
.450	.025	.011	-.001	-.012	-.020	-.030	-.041	-.053	-.057	-.063	-.068	-.072	-.071
.550	-.027	-.037	-.045	-.005	-.052	-.058	-.063	-.070	-.071	-.075	-.080	-.081	-.082
.650	-.046	-.051	-.054	-.053	-.050	-.049	-.051	-.055	-.055	-.056	-.058	-.060	-.057
.750	-.078	-.071	-.065	-.054	-.041	-.034	-.030	-.033	-.030	-.030	-.032	-.031	-.003
.850	a-.080	a-.055	a-.054	a-.011	a.005	a.020	a.027	a.024	a.025	a.030	a0	a.028	.005
.925	-.072	-.028	.009	.045	.074	.092	.099	.097	.093	.089	.088	.088	.010
.975	a-.072	a-.005	a.059	a.095	a.130	a.149	a.144	a.132	a.144	a.143	a.155	a.140	a.062
1.000	a-.076	a.008	a.074	a.125	a.155	a.182	a.164	a.148	a.110	a.172	a.196	a.168	a.125

a Faired value.

CONFIDENTIAL

NACA

TABLE 10.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.80 PROPELLER BLADE SECTION (x = 0.90) - Continued

(f) $M = 0.60$; $\beta_{0.75R} = 45°$.

	J	2.145	2.176	2.217	2.253	2.268	2.300	2.334	2.350	2.379	2.420	2.449	2.481	2.520
	M_x	.990	.980	.977	.971	.960	.956	.947	.936	.929	.924	.918	.914	.903
	α_x'	2.52	2.12	1.60	1.15	.97	.57	.16	-.03	-.38	-.86	-1.20	-1.57	-2.01
	$\Delta\beta$	.41	.38	.34	.18	.12	-.01	-.15	-.22	-.34	-.51	-.64	-.77	-.92
	α_1	1.65	1.44	1.28	1.05	.93	.80	.72	.59	.50	.30	.19	.06	-.11
	c_n	.3690	.3226	.2861	.2342	.2074	.1800	.1600	.1310	.1106	.0684	.0435	.0145	-.0258
	c_m	-.1025	-.0879	-.0808	-.0742	-.0748	-.0725	-.0741	-.0799	-.0846	-.0919	-.0992	-.1027	-.1058
	c_c	.0236	.0221	.0213	.0212	.0203	.0195	.0192	.0197	.0197	.0194	.0185	.0184	.0178
	c/b	Pressure coefficient, P												
Upper surface	0.000	1.269	1.263	1.261	1.258	1.252	1.250	1.244	1.238	1.235	1.232	1.229	1.226	1.221
	.025	-.030	.001	.049	.100	.132	.159	.189	.221	.245	.300	.328	.358	.392
	.050	-.143	-.099	-.045	.002	.028	.051	.075	.102	.124	.170	.196	.221	.251
	.100	-.155	-.140	-.118	-.095	-.081	-.066	-.050	-.029	-.013	.028	.048	.070	.095
	.200	-.264	-.258	-.234	-.202	-.187	-.176	-.163	-.145	-.133	-.102	-.085	-.068	-.048
	.300	-.382	-.366	-.348	-.327	-.312	-.292	-.276	-.268	-.262	-.239	-.226	-.213	-.198
	.400	-.429	-.399	-.386	-.369	-.363	-.354	-.340	-.329	-.317	-.289	-.276	-.272	-.271
	.500	-.495	-.484	-.452	-.418	-.414	-.413	-.413	-.412	-.403	-.376	-.365	-.354	-.334
	.600	-.527	-.507	-.487	-.464	-.465	-.462	-.462	-.467	-.466	-.460	-.452	-.432	-.402
	.700	-.560	-.549	-.535	-.515	-.513	-.511	-.510	-.512	-.510	-.510	-.500	-.495	-.466
	.800	-.609	-.601	-.588	-.576	-.581	-.583	-.584	-.586	-.590	-.589	-.583	-.580	-.570
	.900	-.605	-.415	-.320	-.296	-.205	-.155	-.131	-.117	-.104	-.087	-.078	-.070	-.056
	.950	-.270	-.179	-.148	-.116	-.095	-.069	-.051	-.035	-.013	.009	.034	.049	.072
Lower surface	.0375	.135	.079	.019	-.070	-.186	-.285	-.373	-.457	-.513	-.604	-.663	-.720	-.799
	.075	.094	.054	.012	-.050	-.100	-.191	-.305	-.415	-.470	-.557	-.611	-.666	-.740
	.150	.042	.011	-.021	-.061	-.094	-.111	-.131	-.281	-.385	-.556	-.624	-.678	-.720
	.250	.041	.021	.001	-.024	-.048	-.061	-.068	-.070	-.068	-.239	-.354	-.528	-.629
	.350	0	-.013	-.027	-.046	-.064	-.073	-.077	-.081	-.074	-.040	-.021	-.031	-.045
	.450	-.017	-.026	-.036	-.050	-.066	-.072	-.076	-.084	-.080	-.056	-.036	-.014	0
	.550	-.074	-.078	-.086	-.095	-.108	-.111	-.114	-.120	-.117	-.098	-.083	-.062	-.049
	.650	-.087	-.091	-.097	-.103	-.116	-.117	-.118	-.122	-.118	-.100	-.084	-.067	-.052
	.750	-.132	-.138	-.143	-.151	-.161	-.157	-.144	-.134	-.119	-.094	-.074	-.057	-.041
	.850	[a]-.155	[a]-.162	[a]-.159	[a]-.163	[a]-.165	[a]-.150	[a]-.140	[a]-.118	[a]-.092	[a]-.060	[a]-.043	[a]-.029	[a]-.009
	.925	-.160	-.144	-.139	-.136	-.135	-.101	-.070	-.052	-.031	-.001	.021	.038	.059
	.975	[a]-.164	[a]-.072	[a]-.080	[a]-.065	[a]-.071	[a]-.040	[a]-.013	[a].006	[a].029	[a].058	[a].086	[a].103	[a].130
	1.000	[a]-.165	[a].002	[a]-.033	[a].028	[a]-.020	[a]-.005	[a].013	[a].038	[a].058	[a].084	[a].122	[a].135	[a].169

[a]Faired value.

TABLE 10.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–304.80 PROPELLER BLADE SECTION (x = 0.90) — Concluded

(g) M = 0.65; $\beta_{0.75R}$ = 45°.

J	2.132	2.146	2.170	2.188	2.215	2.238	2.262	2.291	2.307	2.346	2.364	2.442
M_x	1.093	1.085	1.078	1.067	1.059	1.052	1.045	1.037	1.030	1.020	1.010	.991
α_x'	2.68	2.50	2.19	1.96	1.63	1.34	1.04	.68	.49	.02	-.20	-1.12
$\Delta\beta$	.01	-.03	-.10	-.16	-.24	-.31	-.38	-.46	-.51	-.63	-.69	-.92
α_1	1.40	1.34	1.23	1.13	1.03	.94	.82	.61	.60	.39	.19	-.30
c_n	.3116	.2987	.2729	.2523	.2310	.2103	.1845	.1355	.1335	.0871	.0439	-.0684
c_m	-.1059	-.1075	-.1047	-.1054	-.1054	-.1042	-.1042	-.1013	-.1045	-.1018	-.1009	-.0810
c_c	.0310	.0308	.0321	.0319	.0320	.0316	.0322	.0324	.0324	.0336	.0342	.0301

c/b	Pressure coefficient, P											
Upper surface												
0.000	1.334	1.330	1.325	1.317	1.312	1.308	1.303	1.298	1.293	1.287	1.281	1.269
.025	.146	.160	.175	.202	.221	.233	.260	.281	.291	.331	.349	.374
.050	.045	.043	.082	.109	.128	.136	.161	.178	.187	.221	.236	.242
.100	.010	.014	.016	.027	.032	.034	.047	.055	.060	.086	.097	.107
.200	-.101	-.102	-.102	-.092	-.086	-.084	-.068	-.057	-.053	-.031	-.023	-.021
.300	-.216	-.221	-.225	-.219	-.218	-.215	-.193	-.179	-.178	-.156	-.150	-.161
.400	-.277	-.280	-.281	-.271	-.263	-.259	-.248	-.242	-.243	-.236	-.229	-.225
.500	-.328	-.335	-.336	-.328	-.324	-.323	-.312	-.297	-.296	-.292	-.292	-.308
.600	-.384	-.391	-.394	-.388	-.388	-.388	-.379	-.375	-.372	-.365	-.365	-.380
.700	-.425	-.434	-.440	-.438	-.442	-.446	-.442	-.436	-.434	-.429	-.428	-.442
.800	-.479	-.492	-.501	-.501	-.506	-.511	-.509	-.505	-.506	-.514	-.517	-.538
.900	-.520	-.538	-.550	-.552	-.558	-.507	-.567	-.565	-.570	-.583	-.589	-.620
.950	-.533	-.548	-.578	-.559	-.566	-.573	-.572	-.569	-.574	-.586	-.591	-.261
Lower surface												
.0375	.199	.156	.092	.021	-.044	-.092	-.145	-.200	-.228	-.309	-.356	-.502
.075	.155	.119	.071	.025	-.030	-.079	-.139	-.194	-.220	-.293	-.338	-.484
.150	.090	.056	.009	-.020	-.058	-.096	-.149	-.212	-.238	-.315	-.364	-.505
.250	.092	.074	.046	.026	-.002	-.036	-.079	-.146	-.173	-.256	-.304	-.448
.350	.059	.041	.013	-.004	-.024	-.041	-.067	-.102	-.117	-.217	-.282	-.439
.450	.037	.021	.005	-.016	-.032	-.045	-.056	-.075	-.078	-.121	-.198	-.400
.550	-.012	-.029	-.056	-.028	-.043	-.091	-.099	-.109	-.109	-.114	-.133	-.363
.650	-.020	-.036	-.061	-.031	-.044	-.091	-.094	-.102	-.100	-.102	-.108	-.236
.750	-.070	-.085	-.106	-.113	-.124	-.133	-.136	-.140	-.139	-.144	-.151	-.157
.850	[a]-.110	[a]-.120	[a]-.150	[a]-.180	[a]-.180	[a]-.155	[a]-.147	[a]-.157	[a]-.151	[a]-.168	[a]-.173	[a]-.120
.925	-.106	-.123	-.142	-.150	-.160	-.167	-.169	-.171	-.170	-.173	-.178	-.122
.975	[a]-.038	[a]-.106	[a]-.058	[a]-.062	[a]-.050	[a]-.119	[a]-.138	[a]-.152	[a]-.140	[a]-.148	[a]-.140	[a]-.060
1.000	[a].039	[a]-.088	[a].050	[a].030	[a].060	[a]-.060	[a]-.095	[a]-.113	[a]-.100	[a]-.106	[a]-.096	[a].030

[a]Faired value.

NACA

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95)

(a) $N = 1140$ rpm; $\beta_{0.75R} = 45°$.

J	1.780	1.882	2.017	2.138	2.250	2.361	2.502	2.582	2.455	2.312	2.188	2.062	1.952	1.842	1.699
M_x	.601	.613	.620	.634	.639	.656	.666	.677	.664	.646	.633	.625	.612	.604	.590
α_x'	7.25	5.82	4.01	2.44	1.05	−.29	−1.91	−2.80	−1.38	.30	1.81	3.42	4.87	6.38	8.41
$\Delta\beta$	.94	.80	.58	.43	.26	.07	−.13	−.22	−.08	.15	.36	.52	.69	.85	1.05
α_i	3.60	3.04	2.34	1.81	1.30	.79	.23	−.01	.50	1.02	1.54	2.05	2.66	3.21	3.57
c_n	.5778	.4871	.3742	.2897	.2084	.1281	.0368	−.0019	.0806	.1645	.2477	.3287	.4264	.5159	.5729
c_m	−.0283	−.0360	−.0374	−.0342	−.0364	−.0406	−.0444	−.0472	−.0414	−.0414	−.0356	−.0354	−.0403	−.0330	−.0330
c_c															

Pressure coefficient, P

Upper surface

c/b															
0.000	1.090	1.095	1.099	1.103	1.106	1.112	1.115	1.120	1.115	1.108	1.104	1.100	1.094	1.092	1.087
.025	−1.564	−1.436	−.647	−.397	−.138	.069	.294	.377	.207	−.023	−.272	−.524	−.930	−1.646	−1.408
.050	−1.433	−.979	−.635	−.448	−.262	−.100	.085	.158	.015	−.167	−.353	−.544	−.715	−1.304	−1.372
.100	−.947	−.564	−.460	−.344	−.227	−.128	−.015	.042	−.063	−.183	−.289	−.406	−.464	−.517	−.734
.200	−.459	−.420	−.348	−.279	−.208	−.150	−.084	−.046	−.114	−.183	−.240	−.315	−.387	−.465	−.644
.300	−.388	−.365	−.313	−.264	−.216	−.178	−.133	−.100	−.137	−.167	−.205	−.238	−.280	−.317	−.369
.400	−.392	−.333	−.292	−.257	−.222	−.192	−.159	−.137	−.164	−.193	−.220	−.254	−.319	−.333	−.319
.500	−.314	−.298	−.263	−.232	−.208	−.184	−.164	−.143	−.164	−.193	−.220	−.254	−.319	−.333	−.319
.600	−.298	−.291	−.264	−.240	−.222	−.205	−.191	−.173	−.189	−.211	−.232	−.261	−.317	−.320	−.299
.700	−.269	−.263	−.247	−.227	−.214	−.202	−.194	−.179	−.191	−.206	−.220	−.245	−.258	−.293	−.264
.800	−.218	−.216	−.204	−.191	−.183	−.176	−.175	−.161	−.169	−.178	−.184	−.205	−.215	−.245	−.215
.900	−.098	−.093	−.084	−.072	−.070	−.063	−.065	−.059	−.062	−.067	−.070	−.086	−.093	−.123	−.110
.950	−.039	−.030	−.022	−.014	−.014	−.010	−.018	−.010	−.011	−.015	−.009	−.027	−.028	−.065	−.059

Lower surface

c/b															
.0375	.525	.462	.332	.206	.049	−.087	−.289	−.466	−.192	−.028	.136	.265	.359	.349	.235
.075	.390	.337	.233	.139	.027	−.071	−.216	−.265	−.148	−.021	.086	.183	.288	.345	.433
.150	.278	.235	.158	.097	.024	−.037	−.128	−.155	−.085	−.003	.059	.120	.199	.232	.305
.250	.206	.173	.115	.073	.024	−.020	−.082	−.094	−.050	.002	.044	.082	.139	.158	.222
.350	.166	.141	.091	.063	.024	−.008	−.053	−.060	−.028	.011	.030	.061	.106	.114	.167
.450	.130	.110	.072	.016	.017	−.005	−.040	−.045	−.022	.007	.022	.042	.079	.081	.163
.550	.087	.073	.044	.023	−.003	−.008	−.021	−.039	−.030	−.011	.008	.028	.058	.056	.093
.650	.065	.055	.028	.012	−.016	−.020	−.018	−.031	−.034	−.016	−.005	.007	.027	.013	.040
.750	.035	.027	.011	−.001	−.016	−.020	−.025	−.025	−.031	−.016	−.005	−.005	.007	.017	.040
.850	.056	.051	.042	.036	.025	.022	.012	.021	.019	.025	.030	.019	.034	.015	.024
.925	.035	.034	.032	.034	.032	.034	.034	.041	.040	.038	.035	.036	.036	.015	.024
.975	[a]0	[a].048	[a].034	[a].035	[a].032	[a].035	[a].036	[a].043	[a].038	[a].043	[a].045	[a].034	[a].050	[a].018	[a].010
1.000	[a].030	[a].054	[a].034	[a].034	[a].030	[a].034	[a].035	[a].042	[a].035	[a].045	[a].052	[a].037	[a].057	[a].011	[a].002

[a] Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) — Continued

(b) N = 1350 rpm; $\beta_{0.75R}$ = 45°.

J	1.706	1.886	1.984	2.097	2.198	2.293	2.415	2.541	2.589	2.477	2.353	2.248	2.148	2.014	1.910	1.796
M_x	.693	.711	.720	.737	.747	.760	.774	.792	.798	.781	.764	.753	.739	.728	.710	.699
α_x'	8.31	5.77	4.45	2.97	1.69	.52	-.92	-2.35	-2.88	-1.63	-.19	1.07	2.32	4.05	5.44	7.02
$\Delta\beta$	1.55	1.27	.97	.68	.49	.28	-.05	-.28	-.35	-.18	.13	.39	.59	.65	1.21	1.45
α_1	3.69	3.17	2.63	2.10	1.64	1.28	.74	.13	-.12	.50	.93	1.47	1.84	2.55	3.06	3.39
c_n	.5929	.5110	.4226	.3368	.2645	.2071	.1200	.0213	.0194	.0806	.1510	.2374	.2968	.4116	.4903	.5458
c_m	-.0342	-.0379	-.0390	-.0382	-.0403	-.0426	-.0488	-.0593	-.0655	-.0487	-.0479	-.0436	-.0380	-.0387	-.0383	-.0375
c_c																

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.126	1.133	1.137	1.144	1.148	1.153	1.159	1.167	1.170	1.162	1.155	1.151	1.145	1.141	1.133	1.129
.025	-2.083	-1.678	-1.259	-.533	-.280	-.015	.199	.363	.413	.282	.084	-.149	-.390	-.944	-1.607	-1.901
.050	-1.968	-1.618	-.872	-.634	-.413	-.167	-.016	.131	.180	.058	-.111	-.301	-.503	-.755	-1.490	-1.824
.100	-.477	-.351	-.372	-.376	-.332	-.217	-.095	.017	.053	-.037	-.163	-.279	-.360	-.368	-.301	-.436
.200	-.535	-.414	-.402	-.338	-.276	-.222	-.149	-.082	-.059	-.115	-.192	-.254	-.310	-.396	-.422	-.439
.300	-.473	-.388	-.367	-.316	-.273	-.238	-.190	-.144	-.129	-.168	-.218	-.254	-.296	-.354	-.386	-.407
.400	-.419	-.364	-.341	-.300	-.267	-.243	-.208	-.175	-.165	-.193	-.231	-.254	-.285	-.331	-.359	-.379
.500	-.364	-.330	-.309	-.272	-.247	-.230	-.205	-.182	-.175	-.195	-.225	-.238	-.265	-.301	-.328	-.344
.600	-.341	-.330	-.315	-.283	-.264	-.248	-.235	-.220	-.217	-.230	-.249	-.258	-.279	-.307	-.328	-.335
.700	-.304	-.310	-.301	-.275	-.259	-.254	-.245	-.238	-.236	-.242	-.256	-.254	-.268	-.292	-.308	-.308
.800	-.238	-.250	-.245	-.223	-.212	-.217	-.212	-.211	-.212	-.213	-.218	-.215	-.222	-.240	-.251	-.248
.900	-.116	-.108	-.104	-.085	-.075	-.081	-.076	-.081	-.085	-.085	-.090	-.083	-.089	-.103	-.114	-.117
.950	-.056	-.034	-.026	-.009	-.003	-.009	-.007	-.010	-.013	-.010	-.016	-.010	-.011	-.026	-.038	-.046
Lower surface																
.0375	.264	.322	.267	.213	.132	-.036	-.180	-.948	-1.142	-.218	-.094	.058	.174	.244	.332	.251
.075	.455	.358	.271	.179	.086	-.028	-.148	-.181	-.501	-.194	-.083	.031	.125	.255	.339	.411
.150	.322	.248	.182	.117	.053	-.015	-.086	-.131	-.115	-.125	-.054	.021	.076	.169	.232	.289
.250	.230	.176	.126	.080	.036	-.007	-.053	-.091	-.097	-.077	-.033	.016	.049	.116	.165	.206
.350	.173	.133	.091	.055	.021	.004	-.030	-.057	-.067	-.047	-.016	.020	.031	.085	.121	.155
.450	.130	.105	.069	.039	.013	-.001	-.026	-.047	-.055	-.040	-.017	.008	.019	.061	.093	.117
.550	.094	.072	.042	.022	.002	-.020	-.035	-.052	-.060	-.047	-.034	.016	.004	.038	.063	.085
.650	.065	.052	.024	.009	-.006	-.023	-.034	-.045	-.050	-.042	-.034	.010	-.005	.023	.043	.062
.750	.035	.027	.009	.001	-.015	-.024	-.029	-.034	-.038	-.035	-.033	-.023	-.013	.006	.023	.036
.850	.038	.052	.031	.017	.033	.027	.024	.023	.022	.020	.020	.026	.008	.029	.041	.052
.925	.019	.039	.028	.025	.032	.040	.044	.048	.047	.042	.040	.033	.021	.028	.034	.036
.975	a.002	a.020	a.022	a.030	a.024	a.040	a.050	a.066	a.050	a.055	a.050	a.038	a.045	a.010	a.029	a.020
1.000	a-.002	a.009	a.020	a.030	a.018	a.038	a.051	a.072	a.050	a.059	a.057	a.035	a.059	a.001	a.020	a.007

[a]Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) — Continued

(c) N = 1500 rpm; $\beta_{0.75R}$ = 45°.

J	2.007	2.108	2.187	2.299	2.402	2.504	2.550	2.468	2.345	2.256	2.136	2.048
M_x	.815	.828	.837	.854	.868	.884	.891	.876	.858	.842	.830	.818
$\alpha_x{}'$	4.14	2.83	1.83	.45	-.77	-1.94	-2.45	-1.53	-.10	.97	2.47	3.60
$\Delta\beta$	1.45	.93	.55	.07	-.39	-.63	-.77	-.51	-.10	.24	.79	1.24
α_1	2.65	2.29	1.86	1.29	.81	.17	-.08	.43	1.08	1.55	2.04	2.27
c_n	.4277	.3684	.2984	.2081	.1316	.0277	-.0135	.0690	.1742	.2481	.3290	.3658
c_m	-.0428	-.0439	-.0432	-.0494	-.0562	-.0747	-.0791	-.0670	-.0537	-.0502	-.0459	-.0497
c_c												
c/b	Pressure coefficient, P											
Upper surface												
0.000	1.177	1.183	1.187	1.195	1.203	1.211	1.214	1.206	1.198	1.189	1.184	1.179
.025	-.847	-.428	-.191	.035	.241	.385	.429	.332	.138	-.051	-.341	-.543
.050	-.904	-.718	-.493	-.200	.004	.147	.192	.095	-.094	-.290	-.643	-.758
.100	-.480	-.461	-.344	-.244	-.100	.018	.054	-.022	-.172	-.285	a-.426	-.471
.200	a-.375	-.308	-.275	-.245	-.168	-.096	-.075	-.119	-.210	-.151	a-.352	a-.347
.300	-.315	-.325	-.286	-.269	-.223	-.180	-.166	-.192	-.247	-.260	-.334	-.334
.400	-.332	-.324	-.283	-.276	-.247	-.221	-.210	-.228	-.259	-.261	-.324	-.338
.500	-.316	-.295	-.276	-.253	-.231	-.215	-.202	-.218	-.242	-.237	-.294	-.311
.600	-.344	-.320	-.287	-.305	-.296	-.287	-.273	-.288	-.300	-.280	-.322	-.336
.700	-.333	-.309	-.282	-.307	-.315	-.340	-.341	-.327	-.309	-.279	-.313	-.325
.800	-.267	-.242	-.215	-.240	-.237	-.243	-.233	-.239	-.239	-.214	-.246	-.257
.900	-.098	-.075	-.046	-.065	-.060	-.064	-.057	-.061	-.066	-.046	-.078	-.091
.950	-.013	.010	.038	.015	.021	.021	.029	.024	.017	.038	.004	-.006
Lower surface												
.0375	a.430	a.360	.158	-.031	-.406	-.790	-.823	-.726	-.107	.078	.131	.127
.075	.277	.207	.120	-.027	-.101	-.726	-.761	-.630	-.089	-.028	-.005	.045
.150	.190	.141	.086	-.012	-.079	-.457	-.680	-.033	-.048	.052	.096	.155
.250	.136	.102	.068	-.002	-.050	.009	-.026	-.040	-.025	.048	.065	.111
.350	.108	.083	.053	.005	-.031	-.017	.024	-.034	-.011	.050	.047	.089
.450	.088	.065	.045	.001	-.028	-.030	-.007	-.033	-.011	.039	.030	.069
.550	.046	.034	.028	-.022	-.040	-.049	-.035	-.044	-.028	.014	.012	.034
.650	.029	.020	.021	-.022	-.037	-.047	-.038	-.042	-.028	.011	.002	.019
.750	.005	.001	.004	-.030	-.037	-.044	-.037	-.039	-.033	.025	-.016	-.003
.850	a.012	a.010	a.015	a-.011	a-.002	a.000	a.005	a-.001	a-.005	.053	a.007	a.009
.925	.034	.041	.061	.043	.050	.054	.061	.054	.045	.067	.032	.034
.975	a.059	a.069	a.094	a.073	a.065	a.075	a.081	a.089	a.072	a.075	a.057	a.031
1.000	a.070	a.082	a.110	a.091	a.071	a.087	a.091	a.110	a.087	a.077	a.070	a.041

^{a}Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 11.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) - Continued

(d) N = 1600 rpm; $\beta_{0.75R}$ = 45°.

J	2.073	2.173	2.292	2.375	2.471	2.515	2.435	2.343	2.241	2.122
M_x	.880	.897	.913	.924	.938	.948	.932	.915	.899	.883
α_x'	3.28	1.99	.53	-.44	-1.56	-2.05	-1.14	-.07	1.16	2.64
$\Delta\beta$	1.28	.85	.34	-.12	-.75	-1.05	-.50	.07	.58	1.07
α_1	2.67	2.10	1.55	1.08	.37	.03	.64	1.18	1.77	2.27
c_n	.4284	.3387	.2497	.1755	.0594	.0058	.1039	.1903	.2852	.3671
c_m	-.0503	-.0456	-.0606	-.0667	-.0834	-.0973	-.0806	-.0637	-.0593	-.0500
c_c	-.0007	.0030	.0100	.0133	.0168	.0190	.0156	.0121	.0076	.0007

c/b	Pressure coefficient, P									
Upper surface										
0.000	1.208	1.217	1.226	1.232	1.240	1.245	1.236	1.227	1.219	1.210
.025	-.304	-.140	.095	.257	.396	.456	.345	.206	.003	-.237
.050	-.564	-.450	-.172	.075	.156	.217	.104	-.040	-.293	-.519
.100	-.336	-.364	-.209	-.091	.031	.090	-.011	-.136	-.264	-.358
.200	-.613	-.456	-.284	-.245	-.100	-.042	-.126	-.203	-.358	-.555
.300	-.491	-.398	-.304	-.246	-.203	-.212	-.232	-.267	-.329	-.438
.400	-.446	-.376	-.304	-.275	-.263	-.232	-.265	-.284	-.307	-.368
.500	-.372	-.377	-.305	-.275	-.277	-.263	-.244	-.288	-.299	-.298
.600	-.264	-.323	-.322	-.290	-.281	-.302	-.276	-.297	-.299	-.317
.700	-.327	-.361	-.383	-.366	-.344	-.369	-.353	-.369	-.383	-.393
.800	-.220	-.322	-.436	-.438	-.419	-.427	-.431	-.437	-.398	-.246
.900	-.019	-.044	-.025	-.076	-.174	-.229	-.161	-.035	-.056	-.058
.950	.045	.038	.060	.060	.041	.031	.048	.062	.046	.026
Lower surface										
.0375	.182	.121	-.019	-.229	-.580	-.661	-.555	-.240	.063	.128
.075	.260	.125	-.014	-.162	-.542	-.613	-.521	-.072	.042	.175
.150	.182	.082	-.004	-.030	-.455	-.561	-.410	-.055	.032	.113
.250	.133	.053	-.004	-.040	-.307	-.454	-.009	-.034	.019	.077
.350	.107	.036	0	-.027	.022	-.304	0	-.021	.021	.058
.450	.090	.025	-.003	-.027	.019	-.015	-.019	-.021	.011	.042
.550	.055	.002	-.027	-.046	-.023	.011	-.047	-.038	-.014	.015
.650	.038	-.011	-.035	-.052	-.045	-.018	-.057	-.044	-.025	.000
.750	.021	-.024	-.041	-.052	-.058	-.042	-.061	-.044	-.031	-.017
.850	.066	-.030	.018	.010	.005	.005	.006	.018	.024	.033
.925	.061	-.037	.039	.039	.033	.030	.033	.049	.042	.036
.975	[a].061	[a]-.001	[a].068	[a].042	[a].030	[a].039	[a].040	[a].064	[a].058	[a].076
1.000	[a].052	[a].023	[a].090	[a].049	[a].032	[a].040	[a].042	[a].065	[a].060	[a].095

[a]Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 11.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) - Continued

(e) M = 0.56 rpm; $\beta_{0.75R} = 45°$.

J	2.141	2.170	2.195	2.213	2.241	2.262	2.293	2.320	2.354	2.383	2.422	2.460	2.488	2.551
M_x	.966	.961	.950	.942	.934	.929	.921	.909	.906	.899	.890	.882	.876	.867
α_r'	2.41	2.03	1.73	1.51	1.16	.89	.53	.19	-.20	-.56	-1.01	-1.44	-1.75	-2.46
$\Delta\beta$	.77	.67	.57	.51	.41	.34	.24	.15	.02	-.09	-.23	-.35	-.45	-.65
α_i	2.07	1.97	1.93	1.85	1.72	1.56	1.41	1.24	1.08	.94	.73	.50	.39	.14
c_n	.3342	.3184	.3097	.2981	.2774	.2510	.2277	.2006	.1739	.1523	.1184	.0813	.0639	.0226
c_m	-.0669	-.0658	-.0677	-.0653	-.0647	-.0627	-.0628	-.0649	-.0631	-.0622	-.0655	-.0668	-.0669	-.0751
c_c	.0136	.0134	.0124	.0116	.0113	.0108	.0113	.0113	.0117	.0117	.0125	.0135	.0126	.0133

Pressure coefficient, P

	c/b														
Upper surface	0.000	1.255	1.252	1.246	1.242	1.237	1.234	1.230	1.224	1.222	1.219	1.214	1.209	1.207	1.202
	.025	.007	.021	.016	.049	.064	.091	.123	.154	.192	.224	.288	.306	.301	.380
	.050	-.279	-.269	-.263	-.252	-.222	-.175	-.129	-.092	-.049	-.011	.051	.073	.089	.146
	.100	-.280	-.273	-.257	-.243	-.231	-.214	-.197	-.178	-.147	-.119	-.064	-.042	-.027	.021
	.200	-.347	-.332	-.331	-.335	-.335	-.319	-.273	-.237	-.217	-.252	-.155	-.140	-.131	-.098
	.300	-.364	-.348	-.350	-.356	-.356	-.356	-.330	-.327	-.269	-.263	-.222	-.214	-.205	-.176
	.400	-.372	-.365	-.371	-.369	-.361	-.340	-.318	-.306	-.286	-.278	-.246	-.244	-.237	-.212
	.500	-.378	-.371	-.372	-.367	-.355	-.331	-.320	-.307	-.283	-.273	-.238	-.240	-.239	-.221
	.600	-.393	-.387	-.389	-.383	-.369	-.347	-.340	-.319	-.301	-.304	-.291	-.303	-.302	-.279
	.700	-.450	-.442	-.444	-.434	-.421	-.411	-.398	-.387	-.385	-.388	-.357	-.353	-.340	-.311
	.800	-.508	-.500	-.500	-.496	-.491	-.440	-.466	-.452	-.418	-.385	-.280	-.272	-.272	a-.290
	.900	-.231	-.235	-.202	-.171	-.150	-.113	-.080	-.068	-.056	-.051	-.046	-.079	-.096	-.098
	.950	-.102	-.070	-.041	-.019	-.002	.025	.035	.033	.029	.015	.028	.007	-.007	-.013
Lower surface	.0375	.147	.124	.091	.060	.008	-.032	-.084	-.161	-.306	-.417	-.588	-.702	-.780	-.886
	.075	.120	.094	.063	.037	-.001	-.026	-.062	-.088	-.095	-.230	-.388	-.607	-.704	-.815
	.150	.075	.059	.038	.023	-.005	-.019	-.042	-.062	-.079	-.086	-.045	-.041	-.069	-.374
	.250	.042	.031	.017	.006	-.014	-.021	-.036	-.048	-.058	-.072	-.051	-.062	-.064	-.031
	.350	.021	.021	.011	.002	-.013	-.016	-.025	-.034	-.042	-.054	-.034	-.052	-.059	-.049
	.450	.004	.002	-.006	-.013	-.025	-.024	-.030	-.036	-.041	-.051	-.029	-.050	-.057	-.076
	.550	-.031	-.035	-.042	-.045	-.054	-.050	-.054	-.054	-.057	-.065	-.043	-.062	-.076	-.068
	.650	-.057	-.060	-.063	-.064	-.069	-.061	-.061	-.058	-.058	-.065	-.042	-.057	-.067	-.065
	.750	-.099	-.096	-.094	-.088	-.085	-.071	-.065	-.059	-.056	-.060	-.036	-.053	-.059	-.057
	.850	-.062	-.057	-.049	-.041	-.035	-.017	-.004	.002	.008	.004	.029	.012	.002	.005
	.925	-.095	-.085	-.066	-.048	-.030	0	.022	.032	.041	.039	.060	.040	.033	.035
	.975	a-.057	a-.027	a.002	a.050	a.015	a.085	a.069	a.073	a.075	a.056	a.077	a.057	a.060	a.108
	1.000	a.005	a.084	a.105	a.105	a.125	a.145	a.131	a.107	a.098	a.064	a.085	a.064	a.078	a.120

aFaired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 11.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) - Continued

(f) M = 0.60 rpm; $\beta_{0.75R} = 45°$.

J	2.131	2.148	2.182	2.210	2.240	2.259	2.289	2.312	2.341	2.382	2.413	2.439	2.472	2.518	2.543
M_x	1.035	1.026	1.016	1.008	.999	.989	.982	.975	.968	.963	.956	.950	.942	.933	.927
α_x'	2.42	2.20	1.79	1.45	1.10	.87	.54	.25	-.08	-.58	-.91	-1.20	-1.30	-2.05	-2.34
$\Delta\beta$	.42	.39	.34	.28	.19	.12	.01	-.09	-.23	-.41	-.55	-.68	-.83	-1.61	-1.10
α_1	1.93	1.82	1.71	1.62	1.43	1.30	1.12	1.00	.84	.73	.64	.48	.38	.18	.04
c_n	.3106	.2932	.2765	.2590	.2306	.2090	.1806	.1610	.1361	.1177	.1039	.0774	.0613	.0297	.0068
c_m	-.0852	-.0872	-.0863	-.0838	-.0815	-.0764	-.0761	-.0772	-.0812	-.0878	-.0929	-.0918	-.0952	-.0955	-.0924
c_c	.0223	.0233	.0236	.0236	.0231	.0212	.0212	.0201	.0217	.0203	.0192	.0195	.0181	.0170	.0154

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.297	1.291	1.285	1.280	1.274	1.268	1.264	1.260	1.256	1.253	1.249	1.246	1.242	1.236	1.233
.025	.175	.185	.194	.211	.276	.249	.272	.295	.323	.350	.369	.396	.416	.437	.469
.050	-.114	-.114	-.105	-.080	-.001	-.017	.016	.046	.078	.110	.130	.155	.174	.197	.227
.100	-.141	-.132	-.113	-.092	-.043	-.078	-.066	-.050	-.032	-.010	.006	.029	.046	.068	.093
.200	-.232	-.230	-.223	-.208	-.157	-.194	-.183	-.171	-.155	-.119	-.105	-.086	-.078	-.068	-.050
.300	-.273	-.275	-.268	-.253	-.204	-.242	-.237	-.230	-.232	-.277	-.311	-.328	-.358	-.371	-.377
.400	-.284	-.290	-.288	-.278	-.235	-.276	-.279	-.276	-.276	-.278	-.280	-.272	-.269	-.258	-.240
.500	-.307	-.314	-.312	-.305	-.262	-.300	-.292	-.284	-.287	-.293	-.297	-.284	-.285	-.279	-.261
.600	-.314	-.325	-.321	-.313	-.269	-.308	-.302	-.297	-.298	-.299	-.298	-.291	-.295	-.285	-.266
.700	-.370	-.380	-.378	-.367	-.323	-.362	-.360	-.360	-.361	-.357	-.354	-.346	-.345	-.334	-.319
.800	-.422	-.433	-.431	-.419	-.380	-.423	-.420	-.421	-.423	-.419	-.422	-.417	-.417	-.409	-.403
.900	-.426	-.471	-.475	-.467	-.430	-.473	-.465	-.452	-.436	-.417	-.399	-.353	-.295	-.199	-.123
.950	-.490	-.500	-.495	-.476	-.398	-.307	-.214	-.167	-.129	-.120	-.079	.010	.033	.046	.064
Lower surface															
.0375	.200	.160	.118	.070	.027	-.096	-.205	-.267	-.333	-.411	-.484	-.537	-.604	-.677	-.718
.075	.159	.126	.093	.058	.057	-.015	-.127	-.214	-.296	-.328	-.359	-.383	-.413	-.426	-.430
.150	.121	.094	.069	.052	.053	-.014	-.061	-.108	-.199	-.293	-.367	-.424	-.496	-.569	-.606
.250	.077	.061	.045	a.040	a.054	a-.003	-.016	-.005	-.024	-.127	-.225	-.288	-.370	-.455	-.502
.350	.063	.047	.039	.034	.060	.008	-.004	-.003	.006	.025	.024	.020	-.012	-.063	-.114
.450	.032	.019	.014	.011	.039	-.007	-.017	-.017	-.015	-.004	.007	.023	.028	.034	.045
.550	-.005	-.017	-.023	-.027	.003	-.043	-.049	-.048	-.050	-.045	-.038	-.021	-.013	-.002	.017
.650	a-.046	a-.061	a-.074	a-.071	-.041	a-.091	-.098	-.093	a-.093	-.071	-.067	-.051	-.041	-.029	-.009
.750	-.093	-.107	-.111	-.111	-.078	-.122	-.122	-.120	-.114	-.098	-.087	-.067	-.053	-.038	-.018
.850	a-.116	a-.130	-.130	a-.125	a-.090	a-.130	-.123	-.115	-.107	-.081	-.057	a-.030	a-.016	.002	a.004
.925	-.109	-.119	-.121	-.117	-.081	-.110	-.085	-.069	-.050	-.023	-.001	.022	.043	.059	.080
.975	a-.115	a-.127	a-.125	a-.121	a-.080	a-.105	a-.074	a-.040	a-.015	a.027	a.041	a.054	a.090	a.095	a.126
1.000	a-.113	a-.130	a-.131	a-.127	a-.085	a-.105	a-.075	a-.025	a.002	a.055	a.069	a.067	a.110	a.110	a.145

aFaired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–304.40 PROPELLER BLADE SECTION (x = 0.95) — Continued

(g) $M = 0.65$; $\beta_{0.75R} = 45°$.

	J	2.135	2.161	2.184	2.210	2.228	2.254	2.279	2.306	2.336	2.398	2.460
	M_x	1.122	1.113	1.103	1.097	1.084	1.075	1.068	1.060	1.051	1.032	1.015
	$\alpha_x{}^2$	2.48	2.15	1.86	1.54	1.32	1.00	.69	.37	.01	−.72	−1.44
	$\Delta\beta$	−.09	−.17	−.24	−.32	−.37	−.44	−.52	−.59	−.68	−.86	−1.04
	α_1	1.43	1.34	1.22	1.13	1.00	.89	.82	.67	.45	.08	−.29
	c_n	.2306	.2155	.1955	.1826	.1613	.1435	.1323	.1077	.0723	.0129	−.0468
	c_m	−.0619	−.0635	−.0649	−.0647	−.0660	−.0683	−.0719	−.0769	−.0804	−.0786	−.0761
	c_c	.0215	.0229	.0230	.0234	.0241	.0252	.0254	.0267	.0269	.0279	.0272

	c/b	Pressure coefficient, P										
	0.000	1.354	1.348	1.342	1.337	1.329	1.323	1.318	1.313	1.307	1.295	1.284
	.025	.305	.316	.332	.338	.353	.362	.372	.397	.419	.449	.492
	.050	.020	.025	.037	.046	.070	.093	.099	.118	.131	.099	.100
	.100	−.016	.002	.030	.039	.052	.052	.057	.073	.083	.099	.138
	.200	−.101	−.104	−.060	−.098	−.095	−.098	−.093	−.076	−.062	−.029	.005
Upper surface	.300	−.164	−.166	−.160	−.160	−.156	−.156	−.153	−.136	−.130	−.130	−.108
	.400	−.198	−.203	−.200	−.202	−.200	−.204	−.199	−.184	−.180	−.187	−.177
	.500	−.220	−.230	−.231	−.236	−.238	−.243	−.238	−.225	−.226	−.237	−.222
	.600	−.233	−.241	−.243	−.248	−.249	−.256	−.254	−.242	−.246	−.263	−.248
	.700	−.283	−.293	−.297	−.300	−.301	−.307	−.305	−.299	−.308	−.327	−.316
	.800	−.335	−.345	−.347	−.349	−.350	−.358	−.357	−.355	−.367	−.387	−.380
	.900	a−.308	a−.337	a−.358	a−.328	a−.355	a−.385	a−.389	a−.402	a−.425	a−.448	a−.431
	.950	−.211	−.237	−.259	−.285	−.318	−.354	−.376	−.403	−.440	−.469	−.426

	.0375	.231	.181	.116	.055	−.006	−.066	−.103	−.156	−.214	−.333	−.440
	.075	.044	.021	−.003	−.032	−.066	−.106	−.128	−.160	−.205	−.319	−.412
	.150	.151	.118	.089	.058	.018	−.036	−.074	−.123	−.178	−.279	−.365
	.250	.125	.098	.072	.047	.015	−.030	−.062	−.098	−.142	−.233	−.308
	.350	.094	.070	.052	.036	.020	−.014	−.040	−.079	−.126	−.204	−.249
Lower surface	.450	.072	.054	.040	.026	.017	−.001	−.013	−.041	−.103	−.186	−.229
	.550	.029	.013	.002	−.011	−.017	−.028	−.030	−.026	−.076	−.185	−.232
	.650	.013	−.002	−.013	−.024	−.031	−.040	−.027	−.006	.017	−.025	−.027
	.750	−.042	−.055	−.067	−.077	−.084	−.095	−.095	−.087	−.091	−.143	−.187
	.850	a−.070	a−.085	a−.091	a−.105	a−.115	a−.124	a−.123	a−.119	a−.123	a−.145	a−.152
	.925	−.069	−.083	−.092	−.101	−.107	−.117	−.117	−.112	−.118	−.118	−.056
	.975	a−.059	a−.085	a−.092	a−.099	a−.115	−.115	−.115	a−.114	a−.115	a−.095	a−.005
	1.000	a−.052	a−.085	a−.092	a−.098	a−.118	a−.115	a−.122	a−.115	a−.115	a−.085	a−.015

a Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 11.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) - Continued

(h) One-blade propeller; N = 1500 rpm; $\beta_{0.75R} = 45°$.

J	2.508	2.468	2.392	2.353	2.286	2.243	2.176	2.129	2.082	2.024	1.975	1.928	1.861	1.815	1.764	1.697
M_x	.878	.872	.859	.853	.842	.837	.830	.821	.814	.804	.797	.792	.783	.779	.772	.765
a_x'	-1.98	-1.53	-.65	-.19	.61	1.13	1.96	2.56	3.16	3.92	4.57	5.20	6.11	6.75	7.47	8.44
$\Delta\beta$	-.64	-.50	-.26	-.13	.12	.29	.60	.82	1.07	1.36	1.60	1.82	2.10	2.25	2.38	2.48
α_i	.05	.27	.54	.79	1.09	1.33	1.58	1.76	2.05	2.35	2.69	2.99	3.45	3.68	3.99	4.03
c_n	.0090	.0529	.1032	.1519	.2090	.2532	.2997	.3342	.3861	.4381	.5000	.5587	.6439	.6877	.7374	.7439
c_m	-.0754	-.0700	-.0623	-.0564	-.0519	-.0486	-.0447	-.0438	-.0420	-.0424	-.0446	-.0423	-.0342	-.0356	-.0328	-.0283
c_c																

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.236	1.220	1.198	1.195	1.189	1.187	1.184	1.180	1.177	1.172	1.169	1.167	1.163	1.161	1.158	1.155
.025	.387	.337	.257	.169	.035	-.079	-.238	-.351	-.481	-.652	-.959	-1.121	-1.284	-1.382	-1.492	-1.594
.050	.192	.147	.071	-.008	-.125	-.229	-.394	-.546	-.684	-.735	-.968	-1.119	-1.280	-1.372	-1.468	-1.552
.100	-.005	-.044	-.107	-.169	-.255	-.323	-.412	-.460	-.678	-.870	-.935	-1.068	-1.223	-1.310	-1.398	-1.475
.200	-.104	-.126	-.165	-.198	-.242	-.274	-.313	-.343	-.358	-.354	-.353	-.500	-1.010	-1.153	-1.294	-1.167
.300	-.158	-.175	-.204	-.224	-.250	-.272	-.297	-.317	-.334	-.343	-.329	-.317	-.317	-.344	-.394	-.430
.400	-.206	-.218	-.238	-.249	-.266	-.280	-.297	-.312	-.326	-.342	-.343	-.339	-.337	-.341	-.332	-.338
.500	-.235	-.246	-.261	-.267	-.280	-.292	-.304	-.315	-.326	-.344	-.353	-.360	-.370	-.375	-.374	-.370
.600	-.294	-.301	-.307	-.306	-.311	-.316	-.322	-.328	-.336	-.349	-.358	-.364	-.370	-.370	-.366	-.363
.700	-.326	-.327	-.324	-.313	-.313	-.316	-.315	-.324	-.334	-.343	-.349	-.356	-.365	-.365	-.349	-.348
.800	-.240	-.242	-.244	-.238	-.241	-.243	-.243	-.245	-.249	-.261	-.269	-.278	-.284	-.284	-.281	-.278
.900	-.079	-.083	-.090	-.087	-.090	-.093	-.094	-.097	-.100	-.111	-.123	-.134	-.142	-.149	-.147	-.148
.950	.014	.012	.002	.004	.003	0	-.001	-.005	-.007	-.020	-.031	-.042	-.051	-.058	-.059	-.059
Lower surface																
.0375	-.826	-.783	-.572	-.205	-.068	.017	.114	.117	.254	.315	.381	.431	.488	.528	.564	.589
.075	-.726	-.656	-.169	-.123	-.035	.024	.091	.137	.196	.243	.295	.336	.384	.417	.450	.470
.150	-.342	-.041	-.079	-.052	.001	.037	.080	.109	.151	.183	.218	.245	.279	.302	.329	.342
.250	-.055	-.104	-.113	-.087	-.064	-.045	-.016	.004	.035	.061	.098	.128	.164	.187	.207	.218
.350	-.056	-.072	-.070	-.051	-.033	-.019	0	.016	.037	.056	.079	.097	.119	.136	.153	.159
.450	-.013	-.017	-.016	-.002	.019	.032	.048	.059	.080	.090	.113	.129	.147	.161	.174	.176
.550	-.083	-.083	-.079	-.068	-.057	-.047	-.036	-.027	-.012	0	.017	.029	.046	.057	.068	.069
.650	-.019	-.021	-.023	-.012	.004	.005	.013	.020	.037	.044	.058	.068	.080	.090	.099	.098
.750	-.028	-.031	-.034	-.028	-.021	-.017	-.014	-.010	.001	.007	.019	.028	.038	.044	.051	.047
.850	.012	.008	.002	.005	.009	.010	.009	.008	.012	.020	.028	.032	.038	.043	.047	.039
.925	.054	.048	.040	.041	.038	.034	.030	.027	.029	.027	.033	.037	.038	.039	.062	.027
.975	[a].089	[a].083	[a].080	[a].082	[a].060	[a].054	[a].046	[a].043	[a].050	[a].050	[a].070	[a].070	[a].042	[a].040	[a].058	[a].038
1.000	[a].105	[a].108	[a].097	[a].108	[a].072	[a].064	[a].055	[a].052	[a].062	[a].070	[a].070	[a].092	[a].046	[a].040	[a].050	[a].045

[a]Faired value.

CONFIDENTIAL

TABLE 11.– PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16–304.40 PROPELLER BLADE SECTION (x = 0.95) — Continued

(1) One-blade propeller; M = 0.56; $\beta_{0.75R}$ = 45°.

J	2.440	2.410	2.383	2.361	2.297	2.250	2.228	2.208	2.170	2.144	2.119	2.102	2.073	2.052	2.031	2.013	1.993	1.971	1.949	1.930	1.908	1.883
M_x	.893	.899	.906	.911	.925	.933	.943	.948	.954	.962	.969	.978	.983	.992	.999	1.005	1.012	1.020	1.028	1.035	1.044	1.053
$\alpha_x{}'$	−1.21	−.86	−.55	−.29	.48	1.05	1.32	1.57	2.04	2.37	2.68	2.90	3.28	3.55	3.82	4.06	4.33	4.62	4.91	5.17	5.47	5.81
$\Delta\beta$	−.39	−.19	−.09	0	.23	.37	.45	.51	.65	.76	.84	.90	.99	1.06	1.12	1.17	1.23	1.28	1.34	1.38	1.43	1.49
α_1	.37	.49	.53	.67	.97	1.24	1.33	1.42	1.56	1.68	1.76	1.95	2.10	2.22	2.40	2.45	2.55	2.67	2.68	2.75	2.76	2.88
c_n	.0706	.0929	.1016	.1271	.1848	.2352	.2548	.2710	.2948	.3197	.3352	.3710	.3958	.4171	.4494	.4581	.4745	.4955	.4981	.5106	.5148	.5339
c_m	−.0720	−.0734	−.0723	−.0665	−.0651	−.0643	−.0655	−.0669	−.0692	−.0687	−.0657	−.0753	−.0813	−.0871	−.0968	−.0967	−.0991	−.1053	−.1003	−.0981	−.1004	−.1008
c_c	.0129	.0132	.0132	.0130	.0126	.0125	.0127	.0139	.0137	.0140	.0136	.0151	.0161	.0167	.0187	.0184	.0181	.0190	.0185	.0178	.0175	.0177

Pressure coefficient, P

Upper surface

c/b																						
0.000	1.215	1.219	1.222	1.225	1.232	1.237	1.242	1.245	1.248	1.253	1.257	1.262	1.265	1.270	1.274	1.278	1.282	1.287	1.292	1.297	1.302	1.308
.025	.326	.310	.283	.262	.197	.141	.123	.099	.067	.047	.029	.005	−.015	−.032	−.046	−.055	−.074	−.083	−.115	−.114	−.117	−.122
.050	.131	.116	.089	.068	.003	−.060	−.076	−.106	−.151	−.179	−.199	−.219	−.232	−.240	−.245	−.241	−.247	−.246	−.267	−.266	−.268	−.264
.100	−.062	−.074	−.100	−.119	−.175	−.207	−.212	−.225	−.254	−.277	−.296	−.317	−.331	−.341	−.343	−.340	−.348	−.348	−.369	−.370	−.371	−.366
.200	−.152	−.173	−.182	−.191	−.208	−.268	−.283	−.297	−.315	−.326	−.341	−.364	−.376	−.389	−.395	−.393	−.401	−.401	−.419	−.421	−.429	−.432
.300	−.202	−.213	−.227	−.225	−.273	−.276	−.293	−.310	−.322	−.331	−.343	−.364	−.378	−.397	−.403	−.402	−.413	−.415	−.433	−.433	−.437	−.437
.400	−.240	−.243	−.243	−.249	−.271	−.304	−.301	−.315	−.333	−.339	−.343	−.355	−.364	−.378	−.384	−.381	−.392	−.393	−.407	−.409	−.414	−.414
.500	−.214	−.213	−.226	−.228	−.256	−.272	−.271	−.280	−.296	−.301	−.301	−.309	−.312	−.318	−.329	−.326	−.336	−.334	−.343	−.342	−.344	−.342
.600	−.285	−.279	−.272	−.276	−.310	−.321	−.328	−.337	−.355	−.362	−.363	−.368	−.368	−.375	−.377	−.369	−.376	−.375	−.383	−.383	−.385	−.382
.700	−.369	−.372	−.378	−.371	−.381	−.399	−.399	−.406	−.425	−.433	−.435	−.441	−.439	−.443	−.443	−.434	−.440	−.439	−.447	−.446	−.444	−.441
.800	−.288	−.364	−.415	−.417	−.428	−.443	−.439	−.446	−.458	−.467	−.470	−.477	−.478	−.480	−.480	−.471	−.474	−.472	−.478	−.476	−.473	−.449
.900	−.070	−.056	−.045	−.048	−.094	−.149	−.180	−.234	−.271	−.336	−.417	−.495	−.533	−.551	−.555	−.546	−.549	−.546	−.553	−.551	−.547	−.542
.950	.026	.036	.047	.053	.050	.026	.008	−.020	−.045	−.076	−.033	−.157	−.224	−.327	−.473	−.524	−.552	−.556	−.565	−.546	−.559	−.553

Lower surface

c/b																						
.0375	−.674	−.625	−.550	−.482	−.211	−.070	−.017	.027	.076	.117	.158	.197	.234	.274	.300	.330	.350	.375	.410	.433	.452	.485
.075	−.612	−.571	−.473	−.294	−.077	−.016	.020	.051	.083	.112	.143	.173	.203	.234	.257	.281	.299	.320	.348	.368	.385	.415
.150	.003	.007	−.016	−.036	−.032	.007	.031	.051	.071	.091	.113	.134	.157	.181	.198	.219	.231	.248	.271	.287	.300	.325
.250	−.088	−.092	−.101	−.100	−.080	−.060	−.049	−.042	−.030	−.016	−.002	.011	.028	.046	.060	.078	.087	.102	.119	.134	.147	.171
.350	−.062	−.058	−.061	−.057	−.042	−.028	−.016	−.011	−.003	.006	.017	.025	.039	.052	.063	.078	.085	.097	.112	.123	.135	.154
.450	−.012	−.008	−.009	−.007	.004	.018	.027	.030	.035	.042	.052	.059	.071	.082	.092	.107	.111	.123	.135	.146	.155	.173
.550	−.077	−.073	−.075	−.071	−.066	−.059	−.053	−.055	−.052	−.051	−.044	−.040	−.031	−.024	−.016	−.003	−.001	.009	.020	.030	.038	.054
.650	−.018	−.017	−.019	−.018	−.017	−.014	−.010	−.015	−.017	−.016	−.012	−.010	−.003	.005	.012	.025	.029	.037	.047	.055	.064	.077
.750	−.032	−.031	−.036	−.037	−.042	−.046	−.046	−.056	−.064	−.069	−.071	−.076	−.074	−.069	−.062	−.050	−.047	−.038	−.030	−.021	−.013	0
.850	.013	.016	.010	.007	−.002	−.015	−.019	−.035	−.047	−.056	−.059	−.065	−.066	−.066	−.056	−.058	−.054	−.047	−.041	−.035	−.030	−.024
.925	.061	.064	.058	.053	.034	.010	0	−.018	−.023	−.046	−.050	−.064	−.067	−.075	−.076	−.081	−.080	−.076	−.073	−.063	−.062	[a]−.037
.975	[a].101	[a].092	[a].092	[a].087	[a].075	[a].031	[a].018	[a]−.023	[a]−.046	[a]−.082	[a]−.092	[a]−.098	[a]−.094	[a]−.087	[a]−.080	[a]−.078	[a]−.068	[a]−.055	[a]−.050	[a]−.043	[a]−.027	[a]−.020
1.000	.120	.106	[a].111	[a].105	.102	[b].047	[b].035	[b]−.021	[b]−.038	[b]−.090	[b]−.102	[b]−.109	−.102	−.095	−.083	−.085	−.071	−.052	−.050	−.042	−.020	−.022

[a] Faired value.
[b] Lower surface only.

NACA

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) — Continued

(j) One—blade propeller; M = 0.59; $\beta_{0.75R}$ = 45°.

J	2.336	2.245	2.221	2.192	2.172	2.148	2.119	2.098	2.076	2.057	2.032	2.013	1.992	1.970	1.951	1.929
M_x	.952	.978	.985	.991	.998	1.004	1.010	1.017	1.025	1.030	1.038	1.045	1.051	1.058	1.066	1.073
α_x'	.01	1.11	1.40	1.76	2.01	2.32	2.69	2.95	3.24	3.49	3.81	4.06	4.34	4.63	4.89	5.19
$\Delta\beta$	−.03	.32	.40	.49	.55	.61	.68	.73	.78	.81	.86	.88	.91	.94	.97	1.01
α_1	.69	1.09	1.31	1.43	1.60	1.72	1.85	1.95	2.04	2.09	2.23	2.35	2.44	2.46	2.54	2.60
c_n	.1316	.2094	.2516	.2723	.3039	.3284	.3506	.3681	.3848	.3929	.4171	.4384	.4523	.4594	.4713	.4797
c_m	−.0759	−.0755	−.0736	−.0755	−.0837	−.0891	−.0915	−.0931	−.0943	−.0987	−.0936	−.0983	−.1025	−.1012	−.1025	−.1032
c_c	.0158	.0183	.0186	.0193	.0209	.0217	.0219	.0220	.0222	.0205	.0209	.0211	.0213	.0210	.0211	.0209

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.248	1.262	1.266	1.270	1.274	1.277	1.280	1.285	1.290	1.293	1.299	1.303	1.308	1.312	1.316	1.321
.025	.293	.206	.185	.166	.142	.125	.103	.088	.074	.061	.042	.023	.009	−.002	−.021	−.024
.050	.098	.008	−.018	−.044	−.075	−.099	−.121	−.133	−.141	−.148	−.157	−.164	−.167	−.166	−.174	−.170
.100	−.066	−.118	−.126	−.141	−.164	−.185	−.209	−.221	−.230	−.238	−.248	−.256	−.258	−.258	−.268	−.262
.200	−.159	−.224	−.238	−.244	−.255	−.264	−.280	−.292	−.303	−.312	−.322	−.332	−.337	−.339	−.349	−.343
.300	−.242	−.268	−.274	−.284	−.295	−.305	−.316	−.328	−.339	−.346	−.357	−.368	−.372	−.372	−.384	−.378
.400	−.255	−.286	−.292	−.302	−.314	−.322	−.324	−.328	−.354	−.340	−.346	−.354	−.359	−.357	−.371	−.363
.500	−.237	−.262	−.260	−.264	−.272	−.276	−.274	−.278	−.281	−.281	−.288	−.290	−.291	−.289	−.298	−.290
.600	−.290	−.307	−.305	−.313	−.321	−.326	−.325	−.327	−.329	−.330	−.335	−.339	−.340	−.336	−.346	−.339
.700	−.368	−.382	−.376	−.382	−.393	−.397	−.397	−.398	−.398	−.398	−.401	−.401	−.401	−.396	−.405	−.397
.800	−.428	−.442	−.437	−.437	−.447	−.453	−.453	−.453	−.454	−.453	−.455	−.453	−.452	−.445	−.453	−.444
.900	−.284	−.469	−.489	−.491	−.500	−.507	−.510	−.510	−.511	−.512	−.512	−.512	−.511	−.504	−.510	−.504
.950	.004	−.110	−.163	−.260	−.380	−.498	−.518	−.520	−.523	−.522	−.524	−.523	−.530	−.514	−.523	−.515
Lower surface																
.0375	−.374	−.113	−.017	.038	.088	.128	.184	.220	.253	.275	.312	.344	.372	.392	.413	.439
.075	−.342	−.034	.024	.057	.089	.119	.164	.194	.219	.238	.265	.294	.318	.334	.352	.377
.150	−.031	.002	.032	.055	.078	.099	.120	.137	.162	.176	.195	.214	.231	.246	.258	.280
.250	−.035	−.028	−.008	.009	.022	.037	.062	.078	.089	.102	.121	.138	.155	.167	.176	.196
.350	−.038	−.024	−.008	.004	.012	.021	.042	.052	.044	.072	.087	.101	.115	.126	.131	.149
.450	−.016	−.001	.014	.026	.033	.040	.052	.058	.056	.081	.086	.088	.094	.100	.103	.120
.550	−.062	−.057	−.046	−.037	−.035	−.028	−.014	−.005	.001	.008	.020	.033	.045	.056	.059	.073
.650	−.042	−.039	−.029	−.020	−.016	−.009	.004	.013	.022	.027	.032	.035	.039	.046	.046	.061
.750	−.072	−.094	−.089	−.084	−.083	−.079	−.067	−.058	−.052	−.047	−.040	−.031	−.023	−.012	−.012	0
.850	−.038	−.068	−.071	−.075	−.087	−.092	−.084	−.078	−.076	−.070	−.064	−.055	−.049	−.039	−.039	−.028
.925	−.016	−.076	−.082	−.084	−.089	−.095	−.089	−.086	−.087	−.046	−.080	−.069	−.063	−.053	−.055	−.044
.975	[a].005	[a]−.081	[a]−.097	[a]−.095	[a]−.090	[a]−.093	[a]−.088	[a]−.093	[a]−.090	[a]−.012	[a]−.088	[a]−.078	[a]−.066	[a]−.056	[a]−.060	[a]−.055
1.000	[b].016	[b]−.085	[b]−.107	[b]−.103	[a]−.093	[a]−.090	[a]−.087	[a]−.100	[a]−.090	[a].016	[a]−.091	[a]−.080	[a]−.070	[a]−.059	[a]−.065	[a]−.058

[a]Faired value.

[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) — Continued

(k) One-blade propeller; M = 0.61; $\beta_{0.75R} = 45°$.

J	2.434	2.353	2.320	2.266	2.239	2.212	2.188	2.163	2.137	2.117	2.090	2.073	2.049	2.025	2.003	1.983	1.965	1.946
M_x	.957	.977	.991	1.004	1.012	1.019	1.025	1.033	1.041	1.048	1.051	1.062	1.069	1.072	1.080	1.086	1.093	1.100
α_x'	-1.14	-.19	.20	.85	1.18	1.52	1.81	2.13	2.46	2.71	3.06	3.28	3.59	3.90	4.19	4.46	4.70	4.95
$\Delta\beta$	-.66	-.28	-.24	.14	.21	.30	.35	.39	.42	.45	.52	.56	.62	.70	.78	.85	.92	1.00
α_1	.18	.43	.63	.96	1.14	1.18	1.39	1.48	1.53	1.66	1.83	1.89	1.98	2.09	2.18	2.25	2.34	2.43
c_n	.0335	.0835	.1206	.1842	.2171	.2245	.2639	.2832	.2900	.3145	.3448	.3545	.3703	.3887	.4058	.4190	.4332	.4516
c_m	-.0912	-.0777	-.0765	-.0807	-.0815	-.0837	-.0800	-.0822	-.0863	-.0853	-.0869	-.0877	-.0889	-.0909	-.0913	-.0937	-.0943	-.0964
c_c	.0184	.0194	.0208	.0235	.0242	.0237	.0236	.0232	.0230	.0227	.0226	.0221	.0221	.0213	.0214	.0211	.0208	.0208

c/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.250	1.261	1.269	1.278	1.282	1.287	1.290	1.295	1.301	1.310	1.307	1.314	1.320	1.321	1.326	1.330	1.334	1.339
.025	.407	.353	.322	.278	.257	.237	.220	.196	.183	.177	.157	.145	.136	.099	.099	.086	.068	.047
.050	.210	.155	.126	.081	.059	.034	.013	-.021	-.038	-.046	-.065	-.074	-.080	-.092	-.099	-.102	-.108	-.112
.100	.037	-.006	-.031	-.056	-.066	-.078	-.090	-.113	-.125	-.131	-.151	-.160	-.168	-.179	-.186	-.192	-.200	-.210
.200	-.097	-.108	-.129	-.165	-.179	-.190	-.197	-.209	-.214	-.220	-.238	-.247	-.253	-.264	-.272	-.276	-.279	-.287
.300	-.184	-.203	-.213	-.225	-.231	-.242	-.246	-.256	-.260	-.264	-.278	-.285	-.294	-.303	-.309	-.313	-.318	-.325
.400	-.252	-.251	-.262	-.266	-.267	-.275	-.280	-.288	-.288	-.289	-.295	-.298	-.304	-.310	-.315	-.318	-.321	-.325
.500	-.234	-.236	-.228	-.233	-.234	-.240	-.242	-.245	-.246	-.244	-.247	-.247	-.253	-.255	-.254	-.255	-.253	-.257
.600	-.282	-.277	-.273	-.285	-.285	-.292	-.296	-.300	-.301	-.297	-.298	-.297	-.300	-.302	-.303	-.303	-.302	-.304
.700	-.346	-.346	-.345	-.353	-.353	-.356	-.363	-.367	-.369	-.364	-.366	-.362	-.364	-.364	-.361	-.360	-.357	-.360
.800	-.412	-.405	-.406	-.410	-.410	-.410	-.413	-.417	-.419	-.414	-.417	-.413	-.415	-.415	-.412	-.408	-.406	-.406
.900	-.344	-.424	-.444	-.453	-.476	-.459	-.464	-.470	-.474	-.471	-.477	-.473	-.476	-.478	-.474	-.472	-.470	-.468
.950	.009	-.072	-.171	-.397	-.459	-.474	-.479	-.482	-.485	-.481	-.485	-.481	-.485	-.486	-.480	-.479	-.475	-.477
Lower surface																		
.0375	-.623	-.466	-.358	-.245	-.179	-.099	-.026	.038	.085	.117	.167	.199	.225	.261	.297	.323	.357	.386
.075	-.517	-.365	-.272	-.138	-.040	.024	.069	.108	.140	.164	.200	.226	.248	.295	.307	.327	.357	.380
.150	-.466	-.302	-.192	-.022	.012	.034	.061	.087	.111	.129	.158	.178	.193	.215	.233	.247	.270	.287
.250	-.374	-.140	-.007	-.027	-.020	-.007	.010	.028	.045	.058	.080	.094	.105	.124	.145	.160	.183	.200
.350	.012	.020	-.010	-.025	-.017	-.008	.005	.016	.028	.040	.057	.070	.078	.093	.111	.123	.141	.154
.450	.049	.013	-.002	0	.009	.018	.029	.040	.049	.058	.073	.085	.091	.104	.120	.129	.140	.142
.550	-.020	-.051	-.059	-.054	-.046	-.039	-.030	-.021	-.011	-.003	.029	.020	.025	.034	.048	.058	.069	.075
.650	-.024	-.044	-.044	-.039	-.033	-.027	-.021	-.013	-.007	.001	.031	.023	.027	.037	.050	.058	.006	.015
.750	-.059	-.096	-.100	-.100	-.094	-.088	-.082	-.074	-.067	-.059	-.051	-.039	-.035	-.027	-.014	-.006	.006	.015
.850	-.026	-.062	-.089	-.110	-.108	-.104	-.101	-.095	-.091	-.084	-.077	-.066	-.063	-.057	-.044	-.036	-.024	-.016
.925	.007	-.053	-.079	-.112	-.116	-.116	-.113	-.107	-.104	-.096	-.089	-.079	-.077	-.052	-.058	-.049	-.038	-.029
.975	a.050	a-.046	a-.070	a-.110	a-.120	a-.127	a-.127	a-.110	a-.110	a-.107	a-.103	a-.083	a-.084	a-.039	a-.066	a-.054	a-.045	a-.031
1.000	b.077	b-.043	b-.066	a-.108	a-.122	a-.134	a-.135	a-.111	a-.110	a-.112	a-.107	a-.085	a-.087	a-.030	a-.070	a-.055	a-.048	a-.032

a Faired value.

b Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 11.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF AN

NACA 16-304.40 PROPELLER BLADE SECTION (x = 0.95) — Concluded

(l) One-blade propeller; M = 0.64; $\beta_{0.75R} = 45°$.

J	2.319	2.279	2.246	2.212	2.185	2.167	2.154	2.130	2.111	2.087	2.069	2.049	2.032	2.013
M_x	1.041	1.055	1.065	1.074	1.082	1.088	1.096	1.102	1.109	1.117	1.124	1.131	1.137	1.144
α_x'	.21	.69	1.10	1.52	1.85	2.08	2.24	2.55	2.79	3.10	3.33	3.59	3.81	4.06
$\Delta\beta$	−.63	−.51	−.42	−.32	−.24	−.19	−.15	−.08	−.02	.04	.10	.16	.21	.25
α_1	.37	.55	.70	.81	.96	1.09	1.23	1.32	1.43	1.52	1.66	1.71	1.82	1.88
c_n	.0700	.1042	.1329	.1539	.1819	.2074	.2316	.2481	.2684	.2835	.3100	.3171	.3397	.3516
c_m	−.0823	−.0802	−.0789	−.0774	−.0770	−.0754	−.0739	−.0749	−.0769	−.0782	−.0818	−.0819	−.0825	−.1090
c_c	.0274	.0264	.0260	.0251	.0249	.0247	.0245	.0242	.0237	.0236	.0230	.0223	.0229	.0223

c/b	Pressure coefficient, P													
Upper surface														
0.000	1.300	1.310	1.316	1.323	1.327	1.326	1.329	1.340	1.343	1.350	1.355	1.360	1.365	1.370
.025	.405	.382	.358	.346	.330	.317	.303	.291	.279	.291	.253	.244	.231	.218
.050	.214	.189	.161	.147	.128	.110	.091	.073	.057	.051	.035	.029	.020	.014
.100	.056	.040	.025	.023	.013	.004	−.008	−.022	−.036	−.040	−.056	−.063	−.073	−.079
.200	−.052	−.073	−.092	−.093	−.105	−.112	−.119	−.126	−.136	−.137	−.151	−.155	−.166	−.174
.300	−.138	−.142	−.154	−.156	−.165	−.172	−.177	−.184	−.190	−.187	−.200	−.205	−.214	−.218
.400	−.197	−.207	−.217	−.213	−.219	−.221	−.223	−.226	−.228	−.223	−.230	−.231	−.240	−.246
.500	−.201	−.202	−.203	−.196	−.199	−.195	−.194	−.194	−.194	−.194	−.187	−.188	−.194	−.194
.600	−.246	−.249	−.249	−.241	−.242	−.242	−.242	−.242	−.239	−.234	−.233	−.232	−.236	−.240
.700	−.316	−.317	−.314	−.302	−.304	−.305	−.305	−.303	−.305	−.297	−.294	−.292	−.294	−.294
.800	−.370	−.369	−.364	−.352	−.351	−.352	−.352	−.351	−.353	−.344	−.342	−.338	−.340	−.340
.900	−.422	−.425	−.421	−.411	−.409	−.408	−.408	−.408	−.410	−.403	−.401	−.398	−.399	−.400
.950	−.436	−.431	−.430	−.420	−.417	−.417	−.416	−.416	−.418	−.411	−.409	−.405	−.407	−.408
Lower surface														
.0375	−.255	−.167	−.108	−.052	−.008	.043	.097	.146	.201	.204	.228	.257	.292	.325
.075	−.232	−.160	−.099	−.036	.016	.070	.116	.153	.195	.230	.265	.290	.313	.340
.150	−.193	−.122	−.059	−.004	.035	.070	.093	.116	.144	.171	.200	.218	.246	.264
.250	−.167	−.117	−.070	−.009	.020	.043	.062	.080	.102	.123	.139	.156	.168	.183
.350	−.150	−.101	−.039	−.004	.009	.023	.038	.053	.073	.093	.109	.124	.134	.147
.450	−.092	−.006	.012	.028	.035	.047	.058	.069	.084	.100	.115	.118	.134	.150
.550	−.046	−.029	−.035	−.025	−.019	−.010	0	.009	.021	.037	.069	.063	.071	.080
.650	−.011	−.017	−.023	−.013	−.007	.001	.009	.016	.028	.044	.056	.067	.074	.086
.750	−.068	−.076	−.078	−.068	−.063	−.055	−.047	−.040	−.029	−.015	.033	.007	.013	.021
.850	−.091	−.103	−.103	−.092	−.086	−.079	−.073	−.067	−.057	−.043	−.032	−.021	−.016	−.009
.925	−.111	−.125	−.124	−.112	−.107	−.100	−.092	−.085	−.076	−.062	−.051	−.040	−.035	−.028
.975	[a]−.125	[a]−.140	[a]−.135	[a]−.123	[a]−.119	[a]−.113	[a]−.105	[a]−.095	[a]−.085	[a]−.073	[a]−.055	[a]−.055	[a]−.045	[a]−.035
1.000	[a]−.130	[a]−.148	[a]−.143	[a]−.128	[a]−.125	[a]−.120	[a]−.110	[a]−.100	[a]−.090	[a]−.078	[a]−.055	[a]−.060	[a]−.050	[a]−.043

[a]Faired value.

CONFIDENTIAL

NACA

TABLE 12.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF
THE BLADE SECTION AT THE 0.975 RADIUS

(a) N = 1140 rpm; $\beta_{0.75R}$ = 45°.

J	1.769	1.931	2.102	2.291	2.488	2.578	2.374	2.200	2.018	1.840
M_x	.593	.609	.627	.648	.663	.672	.655	.638	.620	.602
$\alpha_x{}'$	7.29	5.07	2.84	.51	-1.78	-2.78	-.48	1.61	3.92	6.31
$\Delta\beta$	.96	.73	.48	.19	-.12	-.24	.04	.35	.58	.87
α_i	4.36	3.26	2.20	1.32	.48	.15	.78	1.65	2.60	3.72
c_n	.5127	.3794	.2565	.1552	.0561	.0174	.0910	.1935	.3029	.4371
c_m	-.0451	-.0494	-.0365	-.0333	-.0311	-.0377	-.0337	-.0324	-.0377	-.0484
c_c										
c/b	Pressure coefficient, P									
Upper surface										
0.000	1.091	1.096	1.102	1.109	1.115	1.118	1.112	1.106	1.099	1.093
.025	-1.470	-.774	-.456	-.193	.073	.203	-.003	-.282	-.581	-1.054
.050	-1.191	-.578	-.326	-.156	.029	.124	-.028	-.215	-.413	-.675
.100	-.601	-.426	-.276	-.173	-.046	.012	-.095	-.208	-.334	-.472
.200	-.385	-.308	-.213	-.153	-.077	-.049	-.109	-.169	-.249	-.343
.300	-.327	-.261	-.179	-.133	-.077	-.062	-.106	-.144	-.208	-.287
.400	-.312	-.250	-.180	-.143	-.096	-.092	-.122	-.149	-.206	-.276
.500	-.301	-.246	-.182	-.146	-.105	-.103	-.129	-.154	-.206	-.272
.600	-.299	-.248	-.186	-.154	-.113	-.116	-.139	-.161	-.208	-.270
.700	-.303	-.259	-.201	-.173	-.134	-.138	-.157	-.178	-.224	-.281
.800	-.273	-.232	-.177	-.149	-.112	-.120	-.137	-.154	-.196	-.249
.900	-.200	-.162	-.116	-.089	-.062	-.067	-.080	-.095	-.132	-.180
.950	-.140	-.104	-.061	-.043	-.024	-.029	-.031	-.044	-.078	-.126
Lower surface										
.0375	.455	.347	.181	.006	-.172	-.327	-.126	.085	.251	.401
.075	.335	.249	.128	.004	-.103	-.183	-.067	.063	.180	.289
.150	.224	.167	.084	.009	-.059	-.113	-.047	.045	.116	.191
.250	.150	.110	.057	.002	-.042	-.075	-.034	.031	.079	.128
.350	.122	.094	.053	.021	-.011	-.034	-.015	.036	.067	.102
.450	.090	.067	.038	.006	-.016	-.034	-.015	.023	.048	.080
.550	.075	.058	.033	.007	-.008	-.023	-.011	.021	.041	.065
.650	.075	.062	.039	.024	.005	-.005	.005	.035	.049	.053
.750	.055	.044	.026	.011	.003	-.004	-.002	.021	.032	.040
.850	.036	.034	.024	.019	.015	.013	.005	.021	.023	.030
.925	.017	.019	.022	.021	.027	.030	.018	.023	.019	.022
975	[a]-.006	[a].008	[a].019	[a].028	[a].039	[a].052	[a].035	[a].027	[a].017	[a].010
1.000	[a]-.012	[a].007	[a].019	[a].032	[a].047	[a].065	[a].045	[a].028	[a].015	[a].010

[a]Faired value.

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE

BLADE SECTION AT THE 0.975 RADIUS — Continued

(b) $N = 1350$ rpm; $\beta_{0.75R} = 45°$.

J	1.950	2.038	2.130	2.221	2.301	2.379	2.468	2.570	2.539	2.430	2.379	2.272	2.181	2.117	2.079	1.992	1.952
M_x	.752	.753	.758	.767	.779	.787	.800	.814	.810	.792	.771	.772	.760	.753	.751	.743	.741
$\alpha_x{}'$	4.82	3.66	2.49	1.35	.39	-.54	-1.56	-2.70	-2.36	-1.13	-.54	-.74	1.85	2.65	3.14	4.26	4.79
$\Delta\beta$	1.09	.83	.63	.45	.17	.05	-.18	-.33	-.29	-.09	.05	.34	.53	.65	.72	.95	1.09
α_1	3.48	2.91	2.25	1.71	1.37	.96	.60	.10	.27	.65	1.09	1.50	1.92	2.35	2.58	3.17	3.43
c_n	.4062	.3381	.2629	.2003	.1600	.1123	.0713	.0123	.0323	.0768	.1271	.1768	.2252	.2729	.2984	.3689	.4009
c_m	-.0441	-.0413	-.0366	-.0347	-.0334	-.0281	-.0396	-.0462	-.0434	-.0399	-.0366	-.0318	-.0344	-.0370	-.0390	-.0482	-.0443
c_c																	
c/b	Pressure coefficient, P																
Upper surface																	
0.000	1.150	1.150	1.152	1.156	1.161	1.164	1.170	1.172	1.175	1.167	1.158	1.158	1.153	1.150	1.150	1.146	1.145
.025	-1.105	-.803	-.520	-.311	-.170	-.022	.082	.210	.175	.056	-.085	-.217	-.365	-.545	-.641	-.973	-1.146
.050	-.850	-.466	-.365	-.240	-.150	-.047	.025	.126	.097	.005	-.095	-.181	-.275	-.386	-.420	-.482	-.742
.100	-.401	-.387	-.317	-.248	-.193	-.124	-.079	-.007	-.029	-.094	-.159	-.213	-.274	-.329	-.359	-.419	-.421
.200	-.318	-.287	-.245	-.204	-.175	-.137	-.122	-.082	-.095	-.131	-.162	-.186	-.220	-.252	-.270	-.319	-.338
.300	-.275	-.247	-.213	-.180	-.160	-.130	-.127	-.101	-.109	-.133	-.152	-.169	-.195	-.219	-.232	-.276	-.294
.400	-.271	-.243	-.215	-.186	-.169	-.146	-.148	-.132	-.137	-.152	-.165	-.176	-.203	-.219	-.230	-.272	-.287
.500	-.269	-.243	-.217	-.191	-.175	-.151	-.156	-.143	-.148	-.161	-.171	-.181	-.206	-.222	-.232	-.272	-.287
.600	-.275	-.250	-.225	-.200	-.185	-.163	-.168	-.158	-.163	-.173	-.184	-.193	-.215	-.230	-.240	-.279	-.294
.700	-.291	-.268	-.244	-.220	-.208	-.187	-.194	-.188	-.192	-.198	-.208	-.214	-.237	-.250	-.259	-.296	-.312
.800	-.263	-.242	-.219	-.195	-.184	-.164	-.172	-.166	-.170	-.177	-.184	-.189	-.211	-.223	-.233	-.268	-.282
.900	-.184	-.167	-.144	-.124	-.114	-.095	-.106	-.106	-.108	-.111	-.113	-.120	-.138	-.150	-.159	-.189	-.201
.950	-.115	-.099	-.078	-.060	-.051	-.032	-.048	-.047	-.049	-.049	-.048	-.057	-.073	-.084	-.093	-.120	-.130
Lower surface																	
.0375	.326	.251	.151	.049	-.039	-.128	-.203	-.891	-.707	-.232	-.108	-.010	.068	.167	.206	.285	.313
.075	.237	.176	.102	.032	-.028	-.070	-.141	-.137	-.136	-.132	-.064	-.010	.043	.116	.143	.203	.225
.150	.155	.114	.063	.018	-.018	-.046	-.095	-.114	-.119	-.094	-.048	-.010	.019	.067	.087	.126	.140
.250	.100	.070	.035	.006	-.023	-.035	-.070	-.094	-.091	-.069	-.042	-.014	.005	.038	.052	.076	.085
.350	.082	.060	.033	.013	-.004	-.008	-.035	-.056	-.053	-.038	-.019	-.001	.009	.032	.045	.061	.068
.450	.060	.042	.018	-.004	-.018	-.017	-.043	-.059	-.056	-.043	-.029	-.018	-.007	.018	.026	.038	.046
.550	.050	.034	.013	.004	-.015	-.012	-.033	-.046	-.044	-.034	-.023	-.014	-.008	.013	.021	.030	.034
.650	.056	.039	.014	.006	-.003	.002	-.018	-.027	-.027	-.019	-.010	-.004	.001	.013	.024	.037	.041
.750	.034	.026	.012	-.003	-.008	-.001	-.017	-.024	-.024	-.020	-.015	-.011	-.008	.011	.017	.021	.020
.850	.021	.016	.006	0	0	.010	-.001	-.001	-.005	-.006	-.007	-.006	-.008	.003	.008	.006	.006
.925	.006	.006	.001	.002	.006	.023	.016	.022	.018	.011	.006	.002	-.005	-.001	.001	-.004	-.005
.975	[a].005	[a].014	[a].000	[a].017	[a].028	[a].048	[a].036	[a].051	[a].037	[a].024	[a].017	[a].011	[a]-.001	[a]-.006	[a]-.007	[a]-.010	[a]-.011
1.000	[a].007	[a].023	[a].000	[a].027	[a].043	[a].063	[a].046	[a].067	[a].047	[a].031	[a].025	[a].017	[a].003	[a]-.007	[a]-.012	[a]-.011	[a]-.013

[a]Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS

OF THE BLADE SECTION AT THE 0.975 RADIUS — Continued

(c) $N = 1500$ rpm; $\beta_{0.75R} = 45°$.

J	2.141	2.205	2.281	2.364	2.439	2.489	2.540	2.524	2.466	2.415	2.328	2.251	2.184
M_x	.847	.854	.866	.876	.886	.893	.901	.896	.890	.879	.869	.856	.847
α_x'	2.35	1.55	.62	-.36	-1.23	-1.80	-2.37	-2.19	-1.53	-.96	.06	.99	1.81
$\Delta\beta$	.77	.47	.13	-.19	-.44	-.60	-.76	-.71	-.53	-.36	-.06	.25	.56
α_1	2.54	2.12	1.60	1.13	.79	.54	.28	.24	.51	.87	1.29	1.70	2.10
c_n	.2968	.2474	.1877	.1323	.0932	.0639	.0329	.0287	.0603	.1026	.1503	.1990	.2458
c_m	-.0442	-.0426	-.0402	-.0438	-.0484	-.0547	-.0578	-.0579	-.0539	-.0454	-.0397	-.0401	-.0390
c_c													
c/b							Pressure coefficient, P						
Upper surface													
0.000	1.192	1.195	1.201	1.207	1.212	1.215	1.220	1.217	1.213	1.208	1.203	1.196	1.192
.025	-.561	-.414	-.207	-.038	.088	.149	.212	.199	.134	.055	-.085	-.247	-.437
.050	-.527	-.329	-.180	-.065	.029	.076	.128	.116	.064	.003	-.099	-.207	-.334
.100	-.366	-.318	-.241	-.162	-.096	-.063	-.026	-.037	-.072	-.112	-.184	-.256	-.323
.200	-.266	-.242	-.209	-.174	-.146	-.130	-.124	-.128	-.037	-.153	-.184	-.213	-.243
.300	-.236	-.217	-.192	-.168	-.155	-.143	-.139	-.142	-.150	-.158	-.175	-.194	-.219
.400	-.238	-.221	-.200	-.182	-.176	-.169	-.162	-.168	-.174	-.176	-.188	-.204	-.224
.500	-.241	-.226	-.207	-.188	-.185	-.177	-.170	-.176	-.183	-.185	-.193	-.209	-.227
.600	-.256	-.242	-.226	-.211	-.209	-.227	-.200	-.207	-.210	-.208	-.215	-.229	-.243
.700	-.290	-.278	-.265	-.255	-.264	-.268	-.277	-.280	-.271	-.256	-.255	-.263	-.277
.800	-.254	-.240	-.226	-.214	-.220	-.218	-.221	-.225	-.223	-.215	-.217	-.229	-.242
.900	-.158	-.145	-.130	-.114	-.113	-.110	-.105	-.111	-.107	-.112	-.119	-.131	-.147
.950	-.078	-.063	-.047	-.032	-.028	-.023	-.018	-.023	-.028	-.028	-.037	-.051	-.068
Lower surface													
.0375	.163	.081	-.025	-.099	-.498	-.617	-.697	-.713	-.638	-.352	-.103	.008	.099
.075	.112	.050	-.022	-.076	-.156	-.485	-.609	-.619	-.460	-.099	-.060	.003	.065
.150	.069	.030	-.014	-.052	-.071	-.043	-.326	-.289	-.077	-.078	-.043	-.002	.035
.250	.038	.010	-.025	-.046	-.065	-.052	-.026	-.028	-.061	-.061	-.041	-.010	.014
.350	.037	.017	-.005	-.018	-.035	-.031	-.013	-.022	-.038	-.029	-.016	.003	.019
.450	.018	-.005	-.022	-.031	-.045	-.046	-.039	-.046	-.051	-.041	-.030	-.017	-.003
.550	.012	-.005	-.019	-.025	-.037	-.038	-.039	-.044	-.042	-.033	-.036	-.014	-.004
.650	.024	.007	-.007	-.011	-.020	-.022	-.024	-.030	-.027	-.020	-.014	-.004	.005
.750	.011	-.003	-.013	-.014	-.020	-.021	-.023	-.028	-.027	-.021	-.018	-.011	-.011
.850	.010	.001	-.003	.001	.001	.004	.003	-.002	-.005	-.003	-.007	-.005	-.008
.925	.002	.002	.001	.013	.022	.027	.030	.025	.019	.017	.006	.004	-.002
.975	a.002	a.005	a.005	a.025	a.037	a.047	a.052	a.048	a.034	a.031	a.017	a.012	a.002
1.000	a.002	a.006	a.007	a.030	a.045	a.057	a.062	a.062	a.042	a.037	a.023	a.017	a.006

aFaired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS — Continued

(d) N = 1600 rpm; $\beta_{0.75R}$ = 45°.

J	2.059	2.110	2.213	2.327	2.409	2.538	2.490	2.370	2.314	2.267	2.167
M_x	.887	.894	.905	.922	.937	.958	.945	.928	.919	.911	.897
α_x'	3.39	2.74	1.45	.08	−.88	−2.34	−1.81	−.43	.23	1.25	2.02
$\Delta\beta$	1.35	1.13	.70	.15	−.36	−1.25	−.90	−.10	.22	.47	.88
α_i	3.33	2.97	2.21	1.59	.82	−.10	.31	1.09	1.50	1.77	2.41
c_n	.3906	.3471	.2594	.1861	.0968	−.0123	.0371	.1271	.1748	.2065	.2826
c_m	−.0497	−.0491	−.0484	−.0486	−.0652	−.0805	−.0769	−.0535	−.0480	−.0503	−.0469
c_c	.0004	.0019	.0049	.0065	.0084	.0105	.0091	.0071	.0066	.0059	.0034

c/b	Pressure coefficient, P										
Upper surface											
0.000	1.212	1.216	1.222	1.230	1.239	1.250	1.243	1.234	1.229	1.225	1.217
.025	−.613	−.474	−.311	−.069	.097	.277	.214	.036	−.053	−.159	−.378
.050	−.595	−.511	−.288	−.088	.037	.189	.135	−.010	−.077	−.153	−.404
.100	−.512	−.459	−.296	−.198	−.107	.026	−.020	−.143	−.192	−.237	−.357
.200	−.397	−.368	−.269	−.205	−.180	−.105	−.139	−.185	−.202	−.221	−.280
.300	−.374	−.303	−.254	−.205	−.179	−.159	−.180	−.189	−.197	−.214	−.254
.400	−.326	−.274	−.242	−.205	−.190	−.207	−.217	−.201	−.207.	−.219	−.249
.500	−.279	−.267	−.252	−.239	−.216	−.243	−.208	−.224	−.228	−.249	−.249
.600	−.292	−.278	−.249	−.226	−.215	−.244	−.196	−.220	−.226	−.235	−.264
.700	−.375	−.371	−.348	−.317	−.305	−.297	−.275	−.313	−.322	−.333	−.357
.800	−.311	−.296	−.350	−.344	−.328	−.303	−.299	−.340	−.345	−.342	−.282
.900	−.126	−.171	−.132	−.106	−.261	−.334	−.320	−.128	−.102	−.114	−.151
.950	−.098	−.078	−.046	−.007	−.002	−.019	−.010	0	−.013	−.028	−.060
Lower surface											
.0375	.212	.176	.061	−.088	−.427	−.621	−.575	−.332	−.107	−.028	.121
.075	.169	.129	.036	−.057	−.371	−.555	−.504	−.153	−.066	−.025	.079
.150	.101	.074	.016	−.042	−.158	−.270	−.260	−.064	−.049	−.020	.042
.250	.052	.036	−.003	−.043	−.032	−.374	−.305	−.065	−.049	−.032	.014
.350	.045	.032	.008	−.014	−.023	−.312	−.035	−.032	−.020	−.009	.020
.450	.023	.014	−.016	−.035	−.051	−.174	−.009	−.050	−.039	−.030	−.001
.550	.029	.008	−.018	−.033	−.048	−.013	−.019	−.045	−.035	−.028	−.003
.650	.025	.017	−.012	−.027	−.044	−.009	−.028	−.040	−.031	−.024	−.001
.750	.009	0	−.021	−.032	−.030	−.029	−.042	−.047	−.037	−.030	−.011
.850	.008	0	−.011	−.014	−.027	−.019	−.023	−.028	−.020	−.016	−.006
.925	−.004	−.004	−.006	.001	−.002	.012	.009	−.003	0	−.001	−.003
.975	a−.012	a.007	a.002	a.012	a.021	a.048	a.076	a.020	a.019	a.013	a.001
1.000	a−.017	a.018	a.005	b.017	b.033	b.068	b.106	b.032	b.028	b.020	a.003

[a]Faired value.

[b]Lower-surface value only.

CONFIDENTIAL

NACA

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS — Continued

(e) $M = 0.56$; $\beta_{0.75R} = 45°$.

J	2.151	2.176	2.221	2.240	2.276	2.293	2.326	2.362	2.400	2.416	2.462	2.505	2.539
M_x	.980	.969	.959	.954	.944	.936	.931	.922	.913	.901	.895	.886	.879
$\alpha_x{}'$	2.22	1.91	1.36	1.12	.69	.48	.09	-.34	-.78	-.97	-1.49	-1.98	-2.36
$\Delta\beta$	.73	.65	.48	.41	.30	.24	.13	-.02	-.17	-.23	-.37	-.52	-.63
α_1	2.51	2.36	2.22	2.02	1.72	1.58	1.42	1.04	.91	.80	.53	.35	.14
c_n	.2932	.2771	.2584	.2355	.2016	.1855	.1665	.1223	.1068	.0945	.0626	.0413	.0168
c_m	-.0741	-.0687	-.0670	-.0628	-.0696	-.0557	-.0484	-.0531	-.0533	-.0534	-.0542	-.0556	-.0556
c_c	.0143	.0115	.0102	.0089	.0084	.0075	.0059	.0073	.0075	.0074	.0072	.0077	.0076

c/b	Pressure coefficient, P												
Upper surface													
0.000	1.263	1.257	1.251	1.248	1.242	1.238	1.235	1.230	1.226	1.220	1.217	1.212	1.208
.025	-.181	-.187	-.170	-.145	-.085	-.055	-.030	.034	.070	.095	.134	.174	.210
.050	-.221	-.216	-.173	-.139	-.094	-.074	-.059	-.013	.015	.034	.065	.096	.125
.100	-.225	-.226	-.205	-.196	-.185	-.183	-.176	-.076	-.111	-.096	-.070	-.043	-.020
.200	-.247	-.241	-.243	-.248	-.218	-.194	-.193	-.178	-.161	-.153	-.135	-.121	-.108
.300	-.229	-.236	-.231	-.225	-.208	-.207	-.202	-.183	-.172	-.162	-.148	-.137	-.128
.400	-.237	-.243	-.235	-.227	-.213	-.205	-.202	-.196	-.192	-.186	-.172	-.159	-.148
.500	-.267	-.275	-.265	-.258	-.245	-.242	-.241	-.215	-.196	-.192	-.180	-.172	-.163
.600	-.284	-.290	-.279	-.270	-.250	-.244	-.231	-.213	-.213	-.215	-.208	-.196	-.186
.700	-.359	-.366	-.355	-.344	-.330	-.324	-.314	-.303	-.302	-.300	-.277	-.251	-.233
.800	-.397	-.408	-.394	-.370	-.366	-.358	-.346	-.332	-.296	-.248	-.220	-.206	-.194
.900	-.440	-.464	-.444	-.411	-.350	-.244	-.145	-.093	-.096	-.104	-.104	-.108	-.109
.950	-.347	-.216	-.119	-.055	-.015	.002	.003	0	-.011	-.018	-.022	-.026	-.031
Lower surface													
.0375	.128	.100	.058	.016	-.059	-.086	-.136	-.301	-.430	-.513	-.605	-.700	-.782
.075	.094	.073	.048	.020	-.027	-.053	-.068	-.102	-.195	-.290	-.450	-.574	-.667
.150	.056	.040	.019	-.002	-.031	-.045	-.058	-.063	-.057	-.052	-.041	-.051	-.104
.250	.014	.003	-.009	-.023	-.036	-.045	-.053	-.059	-.060	-.062	-.057	-.052	-.047
.350	.024	.015	.007	-.001	-.011	-.017	-.024	-.026	-.029	-.033	-.032	-.031	-.033
.450	-.024	-.014	-.019	-.027	-.034	-.038	-.044	-.044	-.045	-.047	-.046	-.047	-.048
.550	-.006	-.025	-.027	-.031	-.037	-.040	-.044	-.042	-.040	-.042	-.041	-.062	-.043
.650	-.018	-.034	-.036	-.035	-.038	-.041	-.041	-.038	-.033	-.033	-.030	-.029	-.030
.750	-.028	-.062	-.055	-.051	-.050	-.050	-.047	-.042	-.033	-.032	-.026	-.025	-.025
.850	-.056	-.062	-.055	-.045	-.042	-.037	-.031	-.020	-.011	-.008	-.002	0	.001
.925	-.094	-.095	-.079	-.056	-.038	-.021	-.009	.006	.016	.018	.025	.029	.029
.975	a-.130	a-.125	a-.082	a-.068	a-.039	a-.005	a.012	a.032	a.033	a.038	a.048	a.054	a.057
1.000	a-.147	b-.142	b-.089	b-.076	b-.041	b.005	b.022	b.045	a.043	a.050	a.061	a.074	a.075

aFaired value.
bLower surface only.

NACA

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS — Continued

(f) $M = 0.62$; $\beta_{0.75R} = 45°$.

J	2.169	2.232	2.258	2.283	2.305	2.340	2.382	2.415	2.468	2.502
M_x	1.078	1.053	1.045	1.037	1.028	1.018	1.007	.998	.985	.972
α_x'	2.00	1.22	.90	.60	.34	−.08	−.57	−.95	−1.56	−1.94
$\Delta\beta$	.41	.22	.12	.02	−.08	−.33	−.32	−.59	−.84	−.97
α_1	1.52	1.36	1.23	1.13	1.00	.78	.60	.34	.08	−.15
c_n	.1790	.1661	.1516	.1365	.1268	.0942	.0842	.0423	.0106	−.0161
c_m	−.0569	−.0621	−.0635	−.0640	−.0660	−.0676	−.0734	−.0718	−.0730	−.0760
c_c	.0163	.0175	.0178	.0174	.0175	.0175	.0176	.0157	.0156	.0136

c/b	Pressure coefficient, P									

Upper surface	c/b										
	0.000	1.325	1.308	1.303	1.298	1.292	1.286	1.279	1.274	1.266	1.258
	.025	.054	.065	.081	.101	.127	.164	.193	.220	.258	.283
	.050	.035	.046	.059	.072	.091	.118	.136	.157	.182	.200
	.100	−.017	−.025	−.025	−.028	−.025	−.017	−.010	.003	.025	.040
	.200	−.098	−.127	−.125	−.125	−.118	−.082	−.096	−.090	−.087	−.089
	.300	−.110	−.139	−.142	−.151	−.149	−.140	−.145	−.147	−.151	−.155
	.400	−.133	−.161	−.164	−.172	−.174	−.176	−.182	−.183	−.185	−.190
	.500	−.158	−.186	−.186	−.191	−.196	−.199	−.211	−.219	−.225	−.228
	.600	−.177	−.198	−.196	−.197	−.198	−.201	−.218	−.224	−.226	−.235
	.700	−.239	−.264	−.262	−.263	−.261	−.259	−.271	−.274	−.289	−.305
	.800	−.277	−.302	−.300	−.299	−.298	−.294	−.299	−.299	−.310	−.320
	.900	−.322	−.350	−.349	−.350	−.348	−.345	−.347	−.345	−.341	−.336
	.950	−.388	−.411	−.409	−.413	−.412	−.409	−.403	−.363	−.259	−.157

Lower surface	c/b										
	.0375	.127	.004	−.043	−.099	−.149	−.216	−.288	−.359	448	−.529
	.075	.106	.012	−.028	−.081	−.127	−.190	−.257	−.316	−.395	−.471
	.150	.077	.006	−.025	−.069	−.103	−.136	[a]−.210	[a]−.255	[a]−.335	[a]−.393
	.250	.046	−.004	−.024	−.060	−.095	−.139	−.179	−.214	−.271	−.322
	.350	.042	.004	.006	−.003	−.024	−.075	−.139	−.182	−.232	−.276
	.450	.027	−.006	−.006	−.006	.001	.005	−.057	−.096	−.187	−.239
	.550	.014	−.023	−.025	−.029	−.022	−.005	.004	.004	−.060	−.091
	.650	.021	−.016	−.020	−.028	−.029	−.021	−.018	−.009	.001	−.002
	.750	−.023	−.061	−.065	−.073	−.074	−.060	−.055	−.057	−.038	−.031
	.850	−.046	−.085	−.090	−.098	−.101	−.098	−.097	−.083	−.060	−.044
	.925	−.088	−.125	−.129	−.134	−.137	−.132	−.132	−.108	−.077	−.037
	.975	[a]−.022	[a]−.159	[a]−.162	[a]−.167	[a]−.166	[a]−.155	[a]−.157	[a]−.128	[a]−.080	[a]−.020
	1.000	[a]−.011	[a]−.178	[a]−.182	[a]−.183	[a]−.182	[a]−.167	[a]−.169	[a]−.139	[a]−.082	[a]−.010

[a]Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF THE

BLADE SECTION AT THE 0.975 RADIUS — Continued

(g) $M = 0.65$; $\beta_{0.75R} = 45^\circ$.

	J	2.141	2.157	2.179	2.196	2.224	2.251	2.268	2.299	2.321	2.338	2.375	2.416	2.432
	M_x	1.152	1.143	1.139	1.129	1.117	1.108	1.094	1.088	1.078	1.068	1.057	1.046	1.042
	$\alpha_x{}'$	2.35	2.15	1.87	1.66	1.32	.99	.78	.41	.15	-.05	-.49	-.97	-1.15
	$\Delta\beta$	-.14	-.19	-.25	-.30	-.38	-.46	-.51	-.60	-.66	-.71	-.82	-.94	-.98
	α_1	1.60	1.57	1.45	1.35	1.15	1.05	.89	.76	.60	.45	.19	-.09	-.19
	c_n	.1855	.1823	.1677	.1574	.1348	.1232	.1035	.0890	.0700	.0523	.0223	-.0106	-.0223
	c_m	-.0535	-.0555	-.0536	-.0524	-.0519	-.0519	-.0542	-.0547	-.0538	-.0457	-.0508	-.0417	-.0411
	c_c	.0171	.0177	.0177	.0180	.0175	.0179	.0180	.0178	.0182	.0185	.0188	.0191	.0192
	c/b	Pressure coefficient, P												
Upper surface	0.000	1.376	1.369	1.366	1.359	1.351	1.345	1.335	1.331	1.325	1.318	1.311	1.303	1.301
	.025	.106	.104	.107	.107	.119	.129	.149	.170	.194	.217	.233	.252	.272
	.050	.057	.064	.074	.084	.100	.107	.119	.135	.153	.169	.178	.190	.205
	.100	.016	.020	.023	.026	.035	.036	.035	.039	.039	.044	.039	.040	.051
	.200	-.053	-.054	-.054	-.063	-.068	-.072	-.073	-.067	-.060	-.052	-.053	-.052	-.043
	.300	-.068	-.074	-.078	-.088	-.097	-.100	-.105	-.103	-.099	-.095	-.103	-.110	-.104
	.400	-.092	-.099	-.105	-.114	-.122	-.127	-.135	-.134	-.133	-.132	-.145	-.153	-.147
	.500	-.119	-.127	-.133	-.142	-.151	-.154	-.162	-.161	-.163	-.166	-.179	-.189	-.186
	.600	-.135	-.143	-.149	-.156	-.166	-.170	-.179	-.177	-.178	-.183	-.195	-.204	-.199
	.700	-.194	-.202	-.208	-.217	-.225	-.229	-.236	-.236	-.239	-.246	-.260	-.270	-.265
	.800	-.230	-.242	-.247	-.255	-.262	-.265	-.271	-.269	-.274	-.283	-.299	-.310	-.306
	.900	-.270	-.288	-.294	-.302	-.306	-.308	-.311	-.308	-.313	-.322	-.341	-.352	-.350
	.950	-.334	-.345	-.351	-.358	-.362	-.364	-.368	-.364	-.370	-.381	-.400	-.414	-.411
Lower surface	.0375	.225	.198	.175	.132	.070	.034	-.022	-.061	-.109	-.151	-.215	-.278	-.304
	.075	.198	.178	.160	.132	.084	.054	0	-.037	-.081	-.121	-.181	-.232	-.249
	.150	.148	.127	.110	.081	.040	.016	-.026	-.053	-.081	-.103	-.132	-.157	-.159
	.250	.096	.079	.065	.040	.007	-.011	-.045	-.065	-.087	-.108	-.146	-.183	-.195
	.350	.084	.071	.056	.036	.008	-.009	-.045	-.063	-.080	-.097	-.130	-.162	-.169
	.450	.063	.053	.041	.025	.007	-.007	-.038	-.059	-.082	-.103	-.137	-.166	-.170
	.550	.042	.031	.019	.006	-.010	-.012	-.031	-.048	-.075	-.105	-.147	-.179	-.186
	.650	.051	.039	.028	.013	-.003	-.007	-.016	-.018	-.034	-.063	-.119	-.158	-.167
	.750	.007	-.006	-.016	-.031	-.047	-.051	-.057	-.054	-.052	-.065	-.124	-.177	-.191
	.850	-.013	-.026	-.041	-.055	-.071	-.075	-.084	-.081	-.080	-.078	-.105	-.162	-.180
	.925	-.050	-.065	-.076	-.090	-.105	-.109	-.116	-.114	-.115	-.114	-.123	-.166	-.172
	.975	a-.074	a-.088	a-.097	a-.113	a-.130	a-.131	a-.138	a-.138	a-.124	a-.139	a-.149	a-.177	a-.167
	1.000	a-.091	a-.099	a-.109	a-.126	a-.143	a-.144	a-.152	a-.152	a-.150	a-.153	a-.164	a-.185	a-.165

a Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 12.– PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS – Continued

(h) One-blade propeller; N = 1500 rpm; $\beta_{0.75R}$ = 45°.

J	2.480	2.409	2.367	2.308	2.260	2.190	2.123	2.077	2.005	1.948	1.887	1.850	1.811	1.761	1.729
M_x	.921	.908	.897	.889	.881	.869	.857	.853	.841	.833	.826	.820	.815	.812	.809
$\alpha_x{}'$	-1.70	-.89	-.40	.30	.88	1.74	2.57	3.16	4.09	4.84	5.66	6.17	6.71	7.40	7.86
$\Delta\beta$	-.58	-.34	-.19	.02	.21	.53	.87	1.11	1.48	1.77	2.05	2.18	2.30	2.43	2.48
α_1	.07	.41	.69	.95	1.15	1.51	1.76	1.94	2.38	2.83	3.30	3.55	3.83	4.06	4.26
c_n	.0119	.0645	.1081	.1510	.1816	.2342	.2765	.3055	.3742	.4419	.5200	.5568	.6045	.6355	.6703
c_m	-.0691	-.0622	-.0562	-.0499	-.0477	-.0450	-.0443	-.0469	-.0482	-.0523	-.0582	-.0613	-.0646	-.0646	-.0664
c_c															

c/b	Pressure coefficient, P														
Upper surface															
0.000	1.230	1.224	1.217	1.213	1.209	1.203	1.197	1.195	1.189	1.185	1.182	1.180	1.177	1.175	1.174
.025	.259	.183	.115	.027	-.068	-.220	-.366	-.461	-.638	-.827	-1.016	-1.107	-1.204	-1.265	-1.362
.050	.136	.065	.009	-.064	-.143	-.267	-.411	-.567	-.707	-.880	-1.037	-1.114	-1.193	-1.246	-1.335
.100	-.079	-.137	-.173	-.226	-.281	-.356	-.402	-.415	-.585	-.743	-.931	-1.010	-1.090	-1.138	-1.220
.200	-.191	-.196	-.199	-.218	-.235	-.274	-.311	-.337	-.374	-.439	-.499	-.556	-.618	-.657	-.744
.300	-.238	-.200	-.201	-.209	-.219	-.249	-.271	-.285	-.304	-.332	-.386	-.425	-.479	-.510	-.497
.400	-.179	-.184	-.185	-.193	-.202	-.229	-.245	-.261	-.282	-.303	-.334	-.358	-.378	-.386	-.389
.500	-.178	-.195	-.195	-.199	-.205	-.226	-.239	-.254	-.279	-.299	-.329	-.348	-.366	-.377	-.387
.600	-.242	-.248	-.265	-.285	-.288	-.291	-.298	-.311	-.338	-.363	-.394	-.413	-.428	-.438	-.451
.700	-.268	-.279	-.283	-.285	-.284	-.290	-.296	-.310	-.337	-.366	-.399	-.420	-.437	-.445	-.455
.800	-.308	-.292	-.264	-.256	-.255	-.266	-.274	-.288	-.318	-.348	-.380	-.400	-.415	-.424	-.435
.900	-.145	-.181	-.177	-.174	-.176	-.191	-.204	-.219	-.246	-.277	-.315	-.339	-.361	-.375	-.385
.950	-.031	-.052	-.047	-.047	-.051	-.070	-.084	-.095	-.119	-.146	-.178	-.198	-.216	-.228	-.238
Lower surface															
.0375	-.671	-.634	-.524	-.213	-.116	-.015	.077	.136	.214	.283	.348	.377	.413	.433	.471
.075	-.607	-.579	-.213	-.108	-.060	.001	.063	.101	.157	.206	.256	.279	.307	.323	.353
.150	-.502	-.251	-.088	-.082	-.052	-.018	.021	.048	.085	.119	.154	.169	.192	.203	.227
.250	-.322	-.053	-.080	-.069	-.052	-.033	-.008	.016	.042	.065	.087	.097	.113	.122	.138
.350	-.015	-.059	-.063	-.054	-.041	-.029	-.012	.006	.026	.044	.062	.068	.080	.085	.099
.450	-.021	-.058	-.052	-.043	-.033	-.023	-.009	0	.015	.031	.046	.050	.061	.065	.077
.550	-.035	-.055	-.046	-.038	-.030	-.023	-.011	-.005	.008	.022	.035	.039	.048	.050	.053
.650	-.056	-.068	-.056	-.049	-.041	-.037	-.027	-.024	-.009	.006	.016	.018	.025	.027	.037
.750	-.054	-.060	-.048	-.045	-.040	-.037	-.030	-.029	-.018	-.008	.001	.004	.011	.012	.020
.850	-.005	-.014	-.007	-.009	-.007	-.009	-.005	-.004	.001	.010	.015	.016	.019	.018	.025
.925	.022	.014	.015	.007	.002	-.005	-.008	-.014	-.015	-.012	-.011	-.014	-.012	-.013	-.008
.975	[a].043	[a].020	[a].026	[a].013	[a].005	[a]-.005	[a]-.012	[a]-.025	[a]-.041	[a]-.045	[a]-.048	[a]-.039	[a]-.037	[a]-.038	[a]-.039
1.000	[a].054	[a].021	[a].030	[a].014	[a].005	[a]-.005	[a]-.016	[a]-.032	[a]-.053	[a]-.060	[a]-.069	[a]-.055	[a]-.054	[a]-.050	[a]-.060

[a]Faired value.

CONFIDENTIAL

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS — Continued

(1) One-blade propeller; $M = 0.57$; $\beta_{0.75R} = 45°$.

J	2.365	2.336	2.311	2.283	2.256	2.240	2.200	2.174	2.160	2.121	2.101	2.086	2.055	2.033	2.014	1.998
M_x	.933	.940	.946	.952	.959	.969	.975	.987	.991	.998	1.004	1.014	1.018	1.025	1.032	1.043
$a_x{}'$	−.37	−.03	.27	.60	.93	1.12	1.61	1.93	2.11	2.60	2.85	3.04	3.44	3.73	3.97	4.18
$\Delta\beta$	−.01	.09	.18	.27	.36	.42	.55	.65	.70	.84	.91	.96	1.06	1.13	1.18	1.23
a_1	.77	.88	1.04	1.12	1.28	1.33	1.51	1.62	1.70	1.82	1.96	1.99	2.06	2.20	2.33	2.39
c_n	.1223	.1410	.1652	.1774	.2003	.2081	.2345	.2548	.2652	.2861	.3058	.3148	.3268	.3481	.3668	.3765
c_m	−.0506	−.0569	−.0615	−.0624	−.0619	−.0632	−.0633	−.0680	−.0738	−.0764	−.0756	−.0759	−.0767	−.0775	−.0796	−.0793
c_c	.0067	.0080	.0085	.0096	.0105	.0114	.0129	.0143	.0148	.0153	.0150	.0150	.0148	.0148	.0146	.0146
c/b							Pressure coefficient, P									
Upper surface																
0.000	1.237	1.241	1.243	1.247	1.251	1.257	1.260	1.267	1.270	1.275	1.277	1.283	1.286	1.290	1.294	1.301
.025	.095	.063	.034	.015	−.015	−.038	−.063	−.080	−.089	−.107	−.114	−.123	−.130	−.153	−.164	−.170
.050	−.009	−.039	−.063	−.084	−.115	−.142	−.168	−.185	−.198	−.235	−.249	−.259	−.261	−.276	−.282	−.280
.100	−.205	−.220	−.222	−.217	−.210	−.197	−.193	−.204	−.223	−.253	−.260	−.263	−.273	−.277	−.290	−.294
.200	−.207	−.201	−.185	−.182	−.220	−.234	−.238	−.229	−.231	−.256	−.263	−.273	−.277	−.290	−.293	−.294
.300	−.214	−.210	−.228	−.221	−.212	−.226	−.240	−.243	−.242	−.251	−.252	−.258	−.259	−.268	−.272	−.267
.400	−.186	−.181	−.177	−.190	−.185	−.188	−.201	−.207	−.207	−.212	−.212	−.216	−.216	−.228	−.234	−.231
.500	−.202	−.220	−.215	−.212	−.225	−.223	−.232	−.234	−.238	−.248	−.247	−.250	−.253	−.263	−.265	−.261
.600	−.241	−.248	−.260	−.262	−.271	−.276	−.284	−.288	−.292	−.303	−.301	−.302	−.304	−.314	−.317	−.315
.700	[a]−.285	[a]−.285	[a]−.300	−.292	[a]−.305	[a]−.323	[a]−.330	[a]−.338	[a]−.343	[a]−.353	[a]−.355	[a]−.345	[a]−.343	[a]−.355	[a]−.360	[a]−.355
.800	−.332	−.333	−.340	−.350	−.356	−.362	−.373	−.381	−.386	−.401	−.401	−.402	−.403	−.412	−.412	−.410
.900	−.137	−.259	−.372	−.436	−.469	−.484	−.491	−.499	−.506	−.520	−.518	−.518	−.513	−.518	−.515	−.508
.950	.003	.007	−.003	−.031	−.081	−.163	−.236	−.374	−.463	−.505	−.506	−.506	−.503	−.507	−.504	−.498
Lower surface																
.0375	−.359	−.287	−.219	−.167	−.103	−.048	−.007	.040	.071	.117	.151	.181	.223	.250	.278	.303
.075	−.215	−.114	−.068	−.047	−.023	.006	.029	.058	.079	.110	.136	.160	.193	.214	.235	.258
.150	−.068	−.075	−.069	−.059	−.044	−.028	−.015	.003	.016	.033	.053	.069	.096	.113	.134	.137
.250	−.070	−.066	−.058	−.049	−.042	−.034	−.027	−.013	−.005	.001	.016	.027	.048	.058	.074	.093
.350	−.065	−.060	−.055	−.049	−.044	−.039	−.036	−.029	−.023	−.021	−.011	−.006	.007	.014	.027	.048
.450	−.047	−.044	−.039	−.035	−.030	−.027	−.025	−.018	−.014	−.012	−.003	.003	.017	.020	.029	.044
.550	−.046	−.045	−.041	−.038	−.036	−.034	−.033	−.029	−.026	−.026	−.018	−.015	−.004	−.002	.006	.018
.650	−.057	−.056	−.054	−.053	−.053	−.056	−.055	−.053	−.051	−.052	−.045	−.038	−.026	−.025	−.016	−.004
.750	−.057	−.057	−.057	−.059	−.063	−.071	−.074	−.074	−.076	−.080	−.073	−.068	−.057	−.056	−.048	−.037
.850	−.019	−.021	−.026	−.032	−.040	−.051	−.053	−.054	−.055	−.063	−.058	−.059	−.054	−.056	−.048	−.038
.925	.004	−.004	−.017	−.036	−.058	−.080	−.087	−.090	−.090	−.094	−.087	−.087	−.080	−.083	−.076	−.067
.975	[a].040	[a].003	[a]−.020	[a]−.040	[a]−.073	[a]−.105	[a]−.120	[a]−.120	[a]−.120	[a]−.125	[a]−.110	[a]−.113	[a]−.100	[a]−.108	[a]−.100	[a]−.105
1.000	[b].058	[b].005	[b]−.020	[b]−.043	[b]−.080	[b]−.115	[b]−.145	[b]−.140	[a]−.133	[a]−.140	[a]−.120	[a]−.128	[a]−.115	[a]−.120	[a]−.113	[a]−.125

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 12.- PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS - Continued

(j) One-blade propeller; M = 0.59; $\beta_{0.75R} = 45°$

J	2.326	2.295	2.285	2.249	2.220	2.206	2.161	2.147	2.119	2.100	2.073	2.052	2.026	2.010	1.996	1.972	1.951	1.932
M_x'	.970	.977	.984	.991	.998	1.006	1.010	1.020	1.028	1.035	1.043	1.050	1.054	1.064	1.073	1.077	1.084	1.092
α_x'	.09	.45	.58	1.01	1.37	1.54	2.10	2.27	2.62	2.86	3.21	3.48	3.82	4.03	4.21	4.53	4.81	5.06
$\Delta\beta$	0	.12	.16	.31	.41	.45	.59	.63	.69	.74	.80	.83	.87	.90	.91	.94	.98	1.02
α_1	.65	.72	.71	.98	1.08	1.20	1.26	1.40	1.50	1.61	1.63	1.73	1.84	1.89	2.01	2.03	2.13	2.18
c_n	.1029	.1129	.1100	.1526	.1694	.1881	.1974	.2194	.2368	.2523	.2577	.2723	.2871	.2994	.3165	.3168	.3316	.3419
c_m	-.0556	-.0534	-.0477	-.0583	-.0634	-.0611	-.0651	-.0655	-.0676	-.0668	-.0696	-.0690	-.0712	-.0724	-.0734	-.0744	-.0762	-.0764
c_c	.0108	.0120	.0131	.0148	.0163	.0149	.0166	.0157	.0159	.0156	.0146	.0150	.0153	.0150	.0153	.0151	.0153	.0150

	c/b	Pressure coefficient, P																
Upper surface	0.000	1.258	1.261	1.266	1.270	1.274	1.276	1.280	1.286	1.292	1.295	1.302	1.307	1.309	1.316	1.321	1.326	1.329	1.334
	.025	.131	.106	.093	.057	.041	.028	-.017	-.027	-.038	-.051	-.057	-.062	-.069	-.070	-.075	-.078	-.092	-.105
	.050	.022	-.006	-.019	-.063	-.099	-.132	-.183	-.188	-.192	-.197	-.199	-.198	-.199	-.195	-.195	-.193	-.195	-.197
	.100	-.146	-.142	-.135	-.133	-.121	-.102	-.146	-.160	-.171	-.183	-.190	-.195	-.202	-.202	-.208	-.206	-.210	-.214
	.200	-.162	-.162	-.166	-.192	-.199	-.190	-.101	-.197	-.203	-.216	-.222	-.227	-.233	-.232	-.235	-.232	-.237	-.239
	.300	-.219	-.196	-.188	-.199	-.207	-.203	-.219	-.215	-.209	-.212	-.214	-.215	-.218	-.215	-.216	-.213	-.220	-.221
	.400	-.174	-.186	-.180	-.179	-.183	-.180	-.201	-.199	-.194	-.196	-.199	-.199	-.202	-.202	-.203	-.200	-.207	-.206
	.500	-.197	-.198	-.201	-.205	-.207	-.203	-.223	-.222	-.217	-.218	-.220	-.220	-.225	-.224	-.225	-.221	-.226	-.226
	.600	-.245	-.239	-.243	-.253	-.255	-.249	-.272	-.274	-.270	-.270	-.271	-.270	-.274	-.271	-.272	-.274	-.277	-.278
	.700	-.277	-.275	-.271	-.283	-.285	-.281	-.301	-.302	-.300	-.300	-.299	-.297	-.301	-.290	-.298	-.294	-.299	-.302
	.800	-.338	-.344	-.340	-.349	-.351	-.347	-.370	-.369	-.369	-.370	-.370	-.367	-.370	-.367	-.367	-.365	-.369	-.374
	.900	-.423	-.449	-.450	-.461	-.461	-.454	-.474	-.475	-.473	-.472	-.469	-.466	-.464	-.457	-.455	-.449	-.449	-.450
	.950	-.078	-.127	-.198	-.329	-.412	-.436	-.470	-.473	-.473	-.472	-.472	-.470	-.470	-.464	-.463	-.458	-.460	-.461
Lower surface	.0375	-.278	-.215	-.174	-.135	-.111	-.066	-.009	.036	.087	.126	.158	.187	.223	.256	.283	.302	.323	.348
	.075	-.221	-.163	-.118	-.031	0	.032	.059	.088	.101	.146	.167	.190	.216	.243	.264	.278	.293	.312
	.150	-.248	-.163	-.158	-.167	-.155	-.130	-.118	-.102	-.077	-.060	-.042	-.024	.001	.027	.046	.061	.075	.093
	.250	-.048	-.068	-.072	-.071	-.061	-.041	-.036	-.025	-.008	.004	.016	.028	.042	.046	.073	.081	.090	.102
	.350	-.048	-.050	-.048	-.048	-.043	-.027	-.028	-.018	-.004	.004	.014	.023	.034	.050	.060	.069	.074	.084
	.450	.022	-.059	-.055	-.051	-.044	-.029	-.030	-.021	-.006	.002	.011	.020	.029	.044	.054	.062	.066	.075
	.550	-.061	-.059	-.057	-.053	-.049	-.035	-.040	-.031	-.019	-.012	-.004	.003	.011	.025	.033	.041	.045	.052
	.650	-.081	-.079	-.076	-.073	-.065	-.051	-.055	-.047	-.036	-.029	-.021	-.014	-.007	.007	.015	.021	.024	.030
	.750	-.113	-.111	-.112	-.113	-.109	-.097	-.103	-.096	-.084	-.078	-.071	-.064	-.057	-.044	-.036	-.029	-.026	-.021
	.850	-.091	-.094	-.096	-.108	-.109	-.100	-.108	-.104	-.094	-.088	-.081	-.082	-.068	-.055	-.048	-.042	-.039	-.035
	.925	-.086	-.100	-.104	-.114	-.113	-.106	-.116	-.114	-.106	-.100	-.094	-.087	-.080	-.067	-.061	-.055	-.051	-.046
	.975	[a]-.076	[a]-.105	[a]-.117	[a]-.122	[a]-.120	[a]-.111	[a]-.130	[a]-.120	[a]-.116	[a]-.111	[a]-.109	[a]-.084	[a]-.095	[a]-.084	[a]-.075	[a]-.066	[a]-.064	[a]-.060
	1.000	[b]-.065	[b]-.110	[b]-.125	[a]-.126	[a]-.122	[a]-.115	[a]-.138	[a]-.128	[a]-.121	[a]-.117	[a]-.116	[a]-.083	[a]-.104	[a]-.091	[a]-.082	[a]-.073	[a]-.070	[a]-.068

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS — Continued

(k) One—blade propeller; M = 0.61; $\beta_{0.75R} = 45°$.

J	2.326	2.293	2.260	2.253	2.221	2.185	2.172	2.149	2.116	2.105	2.080	2.058	2.030	2.016	1.995	1.977	1.960	1.922
M_x	1.013	1.018	1.022	1.033	1.039	1.044	1.053	1.060	1.067	1.075	1.084	1.090	1.095	1.106	1.114	1.119	1.126	1.127
α_x'	.09	.48	.88	.96	1.35	1.80	1.96	2.25	2.66	2.80	3.12	3.40	3.77	3.95	4.22	4.46	4.69	5.19
$\Delta\beta$	-.16	-.02	.12	.15	.25	.34	.36	.39	.45	.48	.54	.59	.69	.74	.82	.88	.95	1.12
α_1	.55	.66	.74	.93	1.06	1.17	1.20	1.26	1.37	1.41	1.54	1.61	1.68	1.80	1.88	1.96	2.03	2.14
c_n	.0868	.1026	.1135	.1458	.1658	.1839	.1890	.1997	.2165	.2229	.2439	.2523	.2665	.2835	.2961	.3071	.3152	.3339
c_m	-.0610	-.0596	-.0599	-.0547	-.0556	-.0567	-.0615	-.0598	-.0605	-.0619	-.0617	-.0625	-.0662	-.0655	-.0667	-.0675	-.0716	-.0733
c_c	.0167	.0169	.0171	.0168	.0170	.0166	.0170	.0166	.0163	.0164	.0157	.0168	.0154	.0161	.0161	.0148	.0158	.0147
c/b	Pressure coefficient, P																	
Upper surface																		
0.000	1.283	1.286	1.288	1.295	1.299	1.302	1.308	1.313	1.317	1.322	1.329	1.333	1.336	1.342	1.348	1.352	1.356	1.357
.025	.183	.157	.130	.118	.094	.078	.071	.065	.053	.053	.041	.038	.017	.009	.002	-.010	-.024	-.049
.050	.071	.041	.009	-.010	-.052	-.088	-.099	-.104	-.112	-.110	-.122	-.123	-.130	-.129	-.124	-.126	-.130	-.140
.100	-.101	-.101	-.101	-.089	-.079	-.076	-.082	-.093	-.111	-.111	-.132	-.135	-.145	-.149	-.152	-.157	-.162	-.175
.200	-.112	-.128	-.146	-.149	-.157	-.156	-.150	-.144	-.151	-.153	-.166	-.169	-.176	-.179	-.182	-.186	-.190	-.203
.300	-.179	-.177	-.183	-.175	-.180	-.181	-.178	-.171	-.172	-.166	-.171	-.171	-.174	-.174	-.175	-.175	-.178	-.188
.400	-.170	-.159	-.157	-.146	-.151	-.155	-.152	-.148	-.151	-.145	-.151	-.150	-.152	-.149	-.150	-.151	-.154	-.163
.500	-.187	-.180	-.187	-.177	-.182	-.185	-.182	-.178	-.182	-.176	-.180	-.178	-.181	-.181	-.183	-.183	-.183	-.191
.600	-.224	-.227	-.234	-.227	-.232	-.235	-.233	-.231	-.235	-.230	-.232	-.230	-.233	-.232	-.232	-.234	-.236	-.246
.700	-.241	-.244	-.255	-.249	-.256	-.260	-.256	-.254	-.258	-.255	-.257	-.255	-.256	-.255	-.255	-.255	-.255	-.265
.800	-.300	-.304	-.312	-.307	-.314	-.322	-.318	-.315	-.320	-.317	-.320	-.320	-.321	-.319	-.317	-.320	-.320	-.328
.900	-.416	-.420	-.428	-.423	-.426	-.431	-.428	-.426	-.429	-.424	-.425	-.422	-.422	-.417	-.412	-.412	-.409	-.415
.950	-.404	-.414	-.423	-.418	-.420	-.424	-.421	-.418	-.423	-.419	-.420	-.418	-.419	-.415	-.411	-.412	-.409	-.417
Lower surface																		
.0375	-.239	-.192	-.153	-.105	-.070	-.032	0	.042	.082	.125	.160	.193	.223	.260	.288	.319	.347	.374
.075	-.213	-.174	-.138	-.087	-.015	.045	.076	.107	.125	.154	.176	.199	.219	.249	.270	.295	.318	.339
.150	-.205	-.168	-.131	-.074	-.038	-.019	-.004	.016	.030	.051	.066	.084	.081	.124	.142	.165	.184	.205
.250	-.166	-.110	-.061	-.034	-.028	-.017	-.005	.010	.020	.036	.045	.058	.068	.086	.097	.113	.127	.138
.350	-.061	-.024	-.038	-.038	-.037	-.026	-.015	-.001	.007	.021	.027	.037	.045	.061	.071	.084	.095	.102
.450	-.008	-.024	-.036	-.023	-.023	-.015	-.005	.009	.015	.028	.032	.041	.049	.064	.073	.085	.095	.102
.550	-.034	-.046	-.053	-.043	-.039	-.032	-.025	-.012	-.008	.003	.008	.016	.023	.037	.045	.055	.064	.070
.650	-.061	-.068	-.072	-.060	-.056	-.051	-.042	-.031	-.027	-.017	-.012	-.005	0	.013	.021	.030	.039	.042
.750	-.101	-.103	-.106	-.095	-.089	-.085	-.077	-.066	-.067	-.052	-.048	-.042	-.036	-.023	-.014	-.006	.001	.005
.850	-.105	-.107	-.110	-.099	-.094	-.089	-.080	-.070	-.065	-.056	-.051	-.045	-.040	-.028	-.019	-.012	-.003	-.001
.925	-.136	-.137	-.142	-.130	-.125	-.121	-.111	-.102	-.098	-.086	-.083	-.078	-.034	-.060	-.050	-.043	-.035	-.032
.975	[a]-.175	[a]-.169	[a]-.175	[a]-.155	[a]-.157	[a]-.150	[a]-.125	[a]-.140	[a]-.128	[a]-.113	[a]-.113	[a]-.120	[a]-.028	[a]-.095	[a]-.083	[a]-.073	[a]-.072	[a]-.065
1.000	[a]-.200	[a]-.190	[a]-.195	[a]-.169	[a]-.175	[a]-.168	[a]-.135	[a]-.160	[a]-.143	[a]-.128	[a]-.128	[a]-.140	[a]-.025	[a]-.115	[a]-.100	[a]-.090	[a]-.090	[a]-.080

[a] Faired value.

CONFIDENTIAL

NACA

CONFIDENTIAL

TABLE 12.— PRESSURE COEFFICIENTS AND AERODYNAMIC CHARACTERISTICS OF

THE BLADE SECTION AT THE 0.975 RADIUS — Concluded

(l) One—blade propeller; $M = 0.65$; $\beta_{0.75R} = 45°$.

J	2.343	2.321	2.303	2.273	2.251	2.232	2.212	2.175	2.165	2.141	2.122	2.101	2.080	2.061	2.041	2.026
M_x	1.067	1.073	1.082	1.086	1.093	1.104	1.110	1.112	1.125	1.131	1.138	1.140	1.148	1.161	1.168	1.175
α_x'	-.11	.15	.36	.72	.99	1.22	1.46	1.92	2.05	2.35	2.59	2.85	3.12	3.37	3.62	3.82
$\Delta\beta$	-.73	-.66	-.61	-.53	-.46	-.40	-.35	-.24	-.21	-.14	-.09	-.03	.03	.09	.15	.19
α_1	.25	.32	.40	.49	.61	.70	.76	.91	.99	1.08	1.14	1.25	1.38	1.48	1.61	1.65
c_n	.0381	.0490	.0619	.0765	.0968	.1094	.1206	.1435	.1571	.1700	.1810	.1971	.2181	.2316	.2523	.2600
c_m	-.0569	-.0542	-.0548	-.0550	-.0546	-.0539	-.0540	-.0563	-.0566	-.0599	-.0590	-.0596	-.0618	-.0631	-.0636	-.0658
c_c	.0175	.0184	.0182	.0183	.0185	.0180	.0181	.0178	.0176	.0176	.0181	.0180	.0178	.0179	.0179	.0177

c/b	Pressure coefficient, P															
Upper surface																
0.000	1.318	1.321	1.328	1.330	1.334	1.342	1.346	1.347	1.356	1.360	1.366	1.367	1.372	1.382	1.388	1.393
.025	.262	.248	.243	.221	.209	.202	.188	.165	.156	.147	.148	.145	.138	.134	.113	.116
.050	.152	.138	.132	.106	.091	.082	.070	.049	.041	.029	.028	.015	-.004	-.010	-.028	-.021
.100	-.018	-.016	-.006	-.007	.002	.014	.019	.005	-.006	-.020	-.022	-.031	-.043	-.045	-.061	-.056
.200	-.058	-.063	-.062	-.079	-.081	-.077	-.078	-.084	-.082	-.084	-.080	-.081	-.090	-.093	-.107	-.102
.300	-.125	-.125	-.120	-.128	-.126	-.120	-.119	-.123	-.118	-.116	-.106	-.100	-.103	-.101	-.112	-.105
.400	-.127	-.125	-.115	-.119	-.112	-.104	-.103	-.107	-.103	-.103	-.093	-.084	-.083	-.080	-.085	-.074
.500	-.161	-.160	-.151	-.153	-.145	-.135	-.131	-.135	-.131	-.131	-.119	-.106	-.098	-.098	-.111	-.104
.600	-.189	-.190	-.181	-.185	-.177	-.165	-.159	-.165	-.164	-.167	-.158	-.150	-.150	-.150	-.162	-.154
.700	-.221	-.220	-.209	-.212	-.200	-.184	-.180	-.187	-.188	-.192	-.187	-.181	-.180	-.178	-.188	-.181
.800	-.277	-.273	-.263	-.265	-.257	-.247	-.248	-.256	-.255	-.258	-.253	-.247	-.246	-.244	-.253	-.246
.900	-.358	-.361	-.350	-.358	-.353	-.342	-.341	-.350	-.348	-.350	-.344	-.336	-.334	-.332	-.340	-.330
.950	-.361	-.362	-.352	-.361	-.357	-.346	-.342	-.352	-.351	-.353	-.346	-.340	-.338	-.336	-.343	-.334
Lower surface																
.0375	-.192	-.151	-.110	-.075	-.038	-.002	.032	.057	.088	.118	.152	.197	.242	.274	.314	.342
.075	-.177	-.152	-.120	-.091	-.054	-.017	.022	.062	.108	.151	.186	.216	.245	.267	.295	.319
.150	-.164	-.146	-.118	-.087	-.054	-.023	.010	.042	.074	.095	.117	.141	.161	.177	.196	.215
.250	-.140	-.126	-.101	-.085	-.057	-.031	-.005	.021	.039	.051	.072	.096	.114	.126	.140	.157
.350	-.119	-.112	-.094	-.084	-.060	-.031	-.003	.013	.026	.033	.050	.070	.086	.098	.107	.124
.450	-.113	-.102	-.081	-.064	-.026	.003	.017	.022	.033	.042	.059	.076	.091	.100	.107	.121
.550	-.122	-.106	-.077	-.048	-.018	-.005	0	.003	.013	.018	.033	.050	.065	.074	.078	.092
.650	-.086	-.075	-.048	-.037	-.030	-.020	-.015	-.015	-.006	.001	.015	.030	.042	.051	.054	.067
.750	-.084	-.074	-.062	-.070	-.064	-.054	-.048	-.046	-.038	-.032	-.019	-.004	.009	.018	.020	.035
.850	-.056	-.068	-.063	-.073	-.069	-.056	-.050	-.049	-.039	-.034	-.021	-.005	.007	.016	.018	.030
.925	-.090	-.104	-.099	-.108	-.102	-.089	-.081	-.079	-.070	-.065	-.052	-.042	-.025	-.017	-.015	-.003
.975	[a]-.132	[a]-.167	[a]-.162	[a]-.175	[a]-.161	[a]-.136	[a]-.128	[a]-.125	[a]-.127	[a]-.105	[a]-.103	[a]-.095	[a]-.067	[a]-.075	[a]-.070	[a]-.062
1.000	[b]-.175	[b]-.270	[b]-.230	[b]-.285	[b]-.235	[b]-.200	[b]-.185	[b]-.180	[b]-.210	[b]-.150	[b]-.160	[b]-.180	[b]-.125	[b]-.170	[b]-.175	[b]-.150

[a]Faired value.
[b]Lower surface only.

CONFIDENTIAL

NACA

CONFIDENTIAL

CONFIDENTIAL

Figure 1.- Vector diagram of the velocities and forces acting on a
blade section.

CONFIDENTIAL

Pressure tubes imbedded in surface of blade

Hollow shaft

Pressure transfer device

1000-hp.
motor

1000-hp.
motor

16 ft.

10 ft.

NACA

CONFIDENTIAL

To manometer
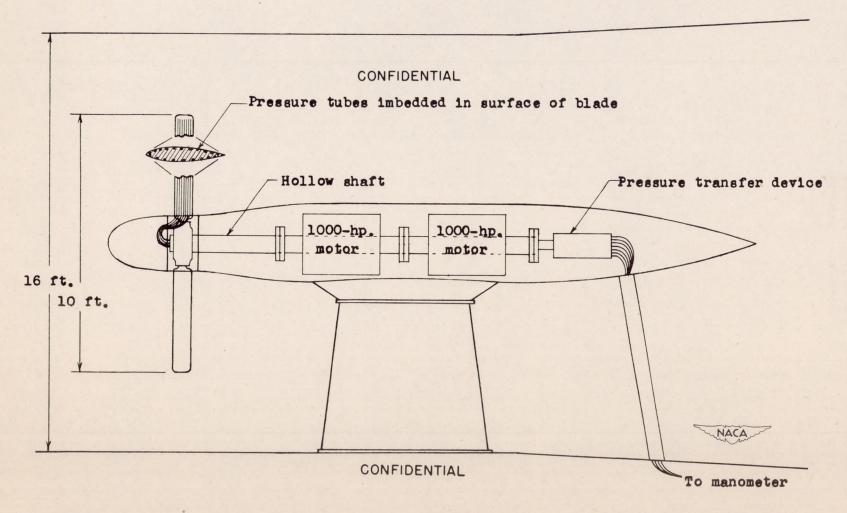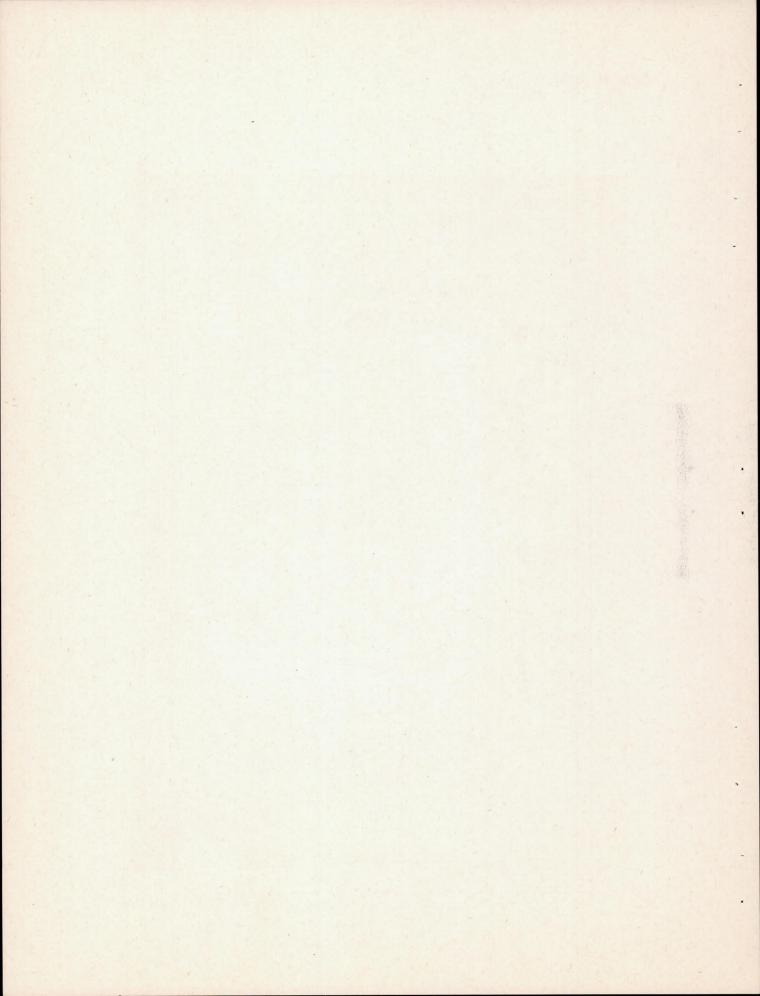
Figure 2.- Diagram of the apparatus used to obtain pressure distributions on the sections of operating propellers.
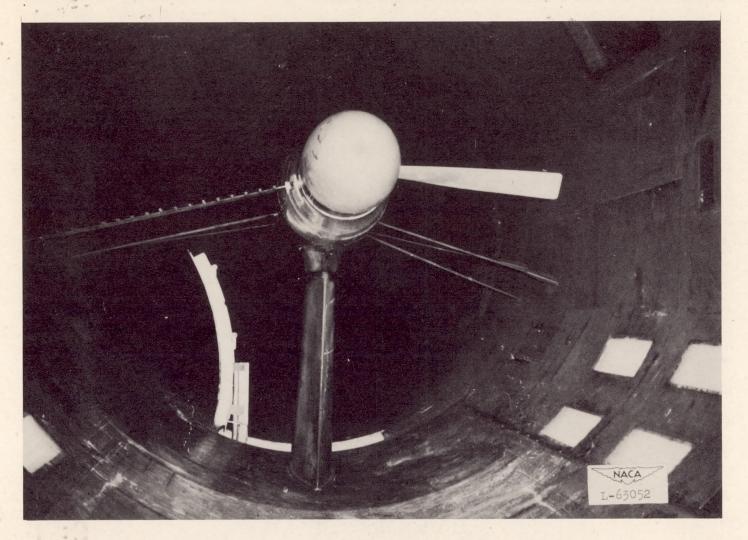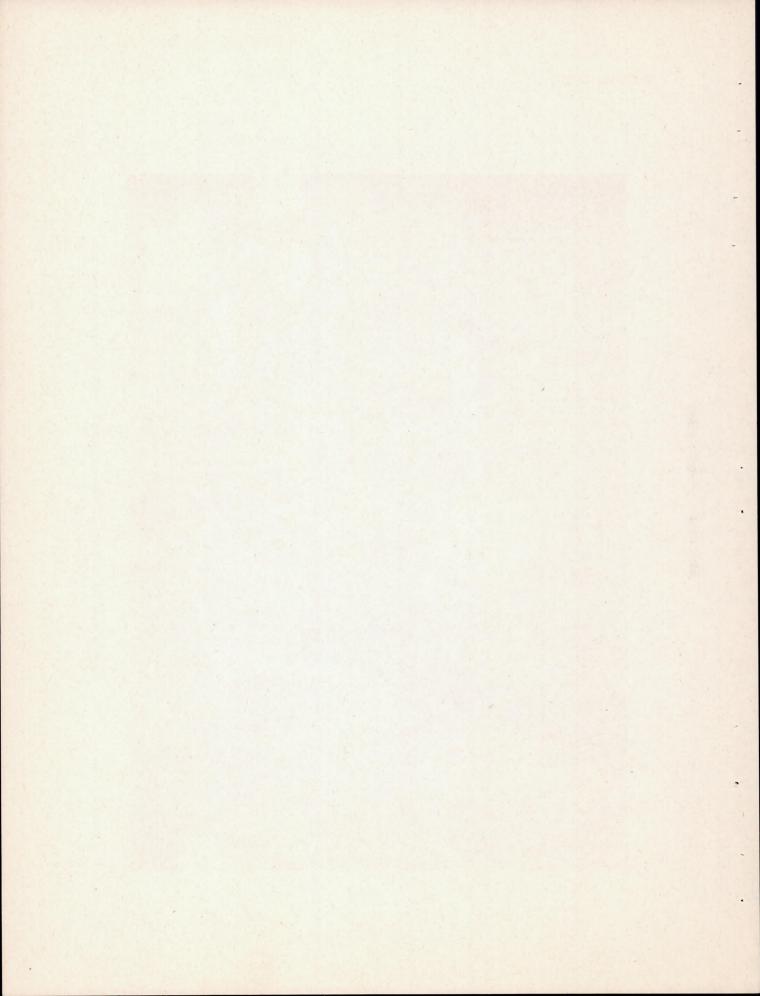
Figure 3.- Propeller dynamometer with the one-blade propeller installed.

CONFIDENTIAL
Developed plan form

- - - - - Location of blade sections for which
pressure distributions were obtained

CONFIDENTIAL
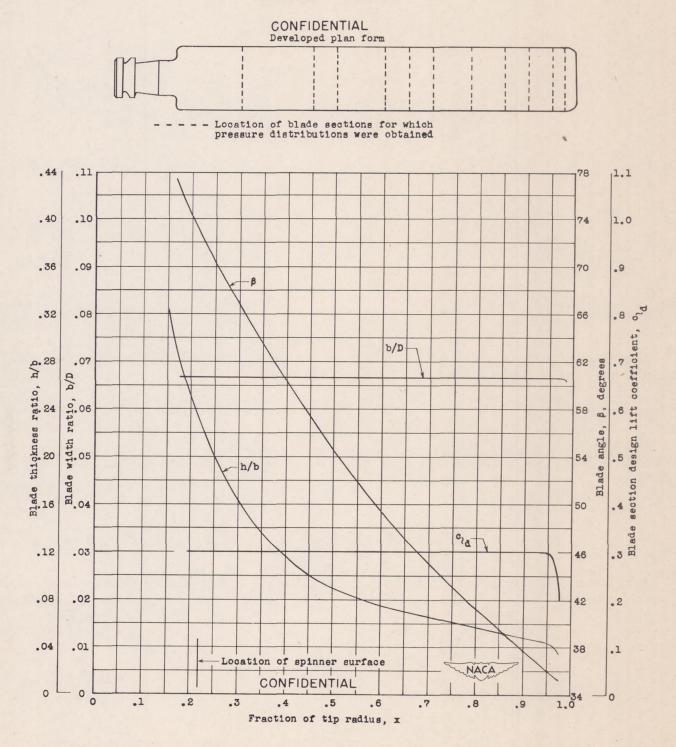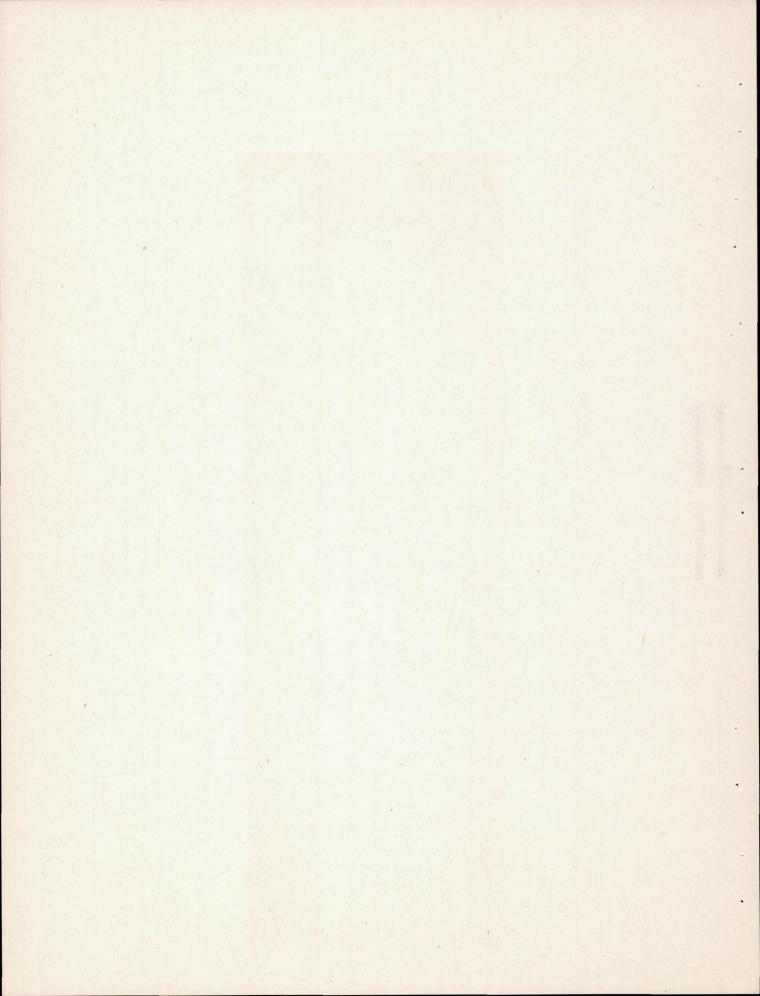
Figure 4.- Blade-form curves for the NACA 10-(3)(066)-033 propeller.
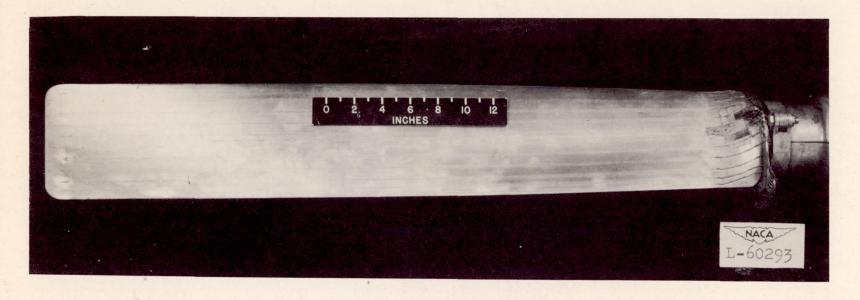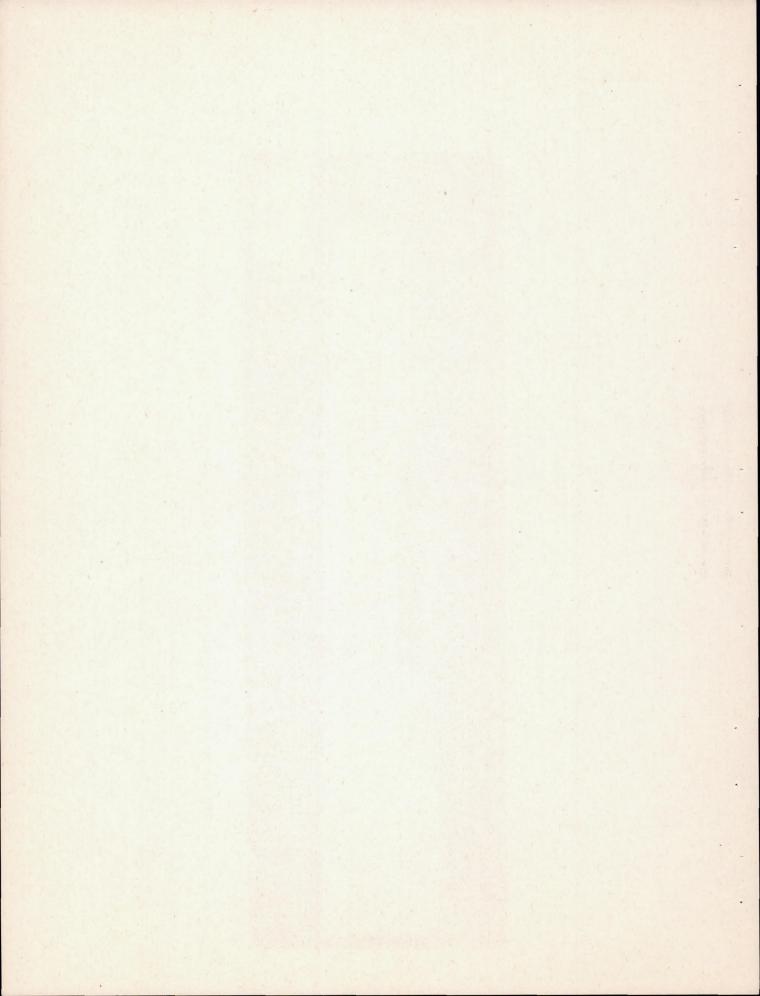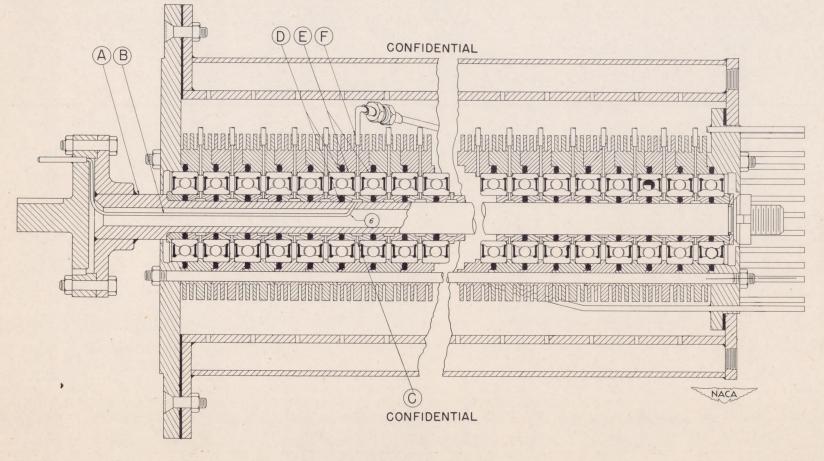
Figure 5.- The NACA 10-(3)(066)-033 propeller blade containing pressure tubes.

CONFIDENTIAL
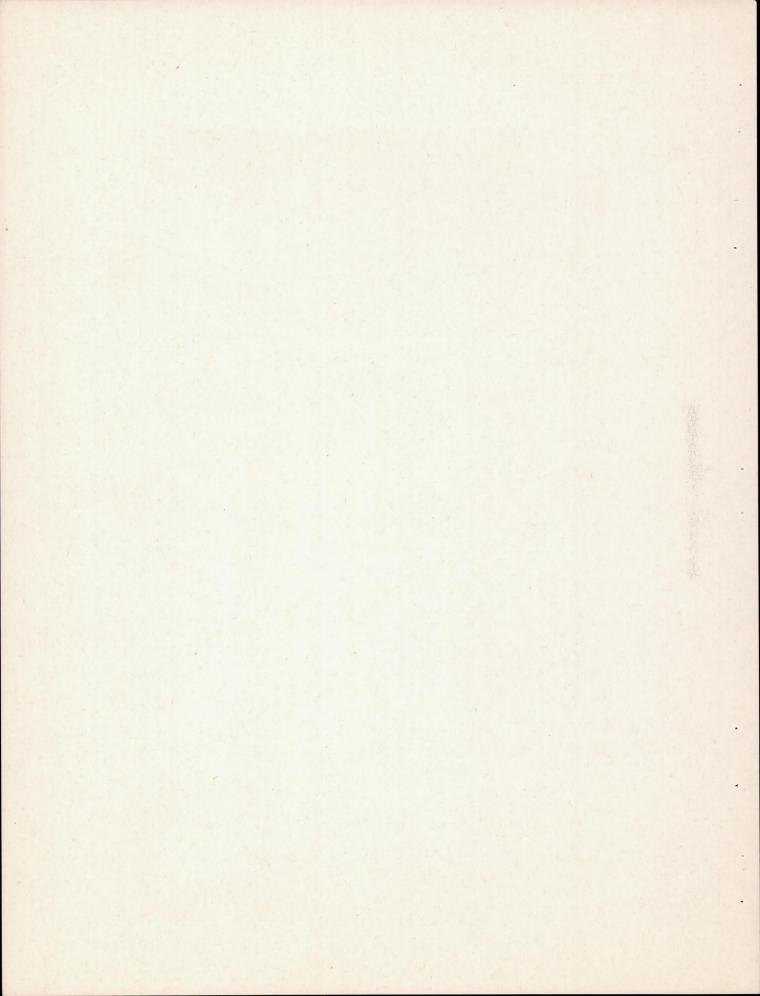
CONFIDENTIAL

Ⓐ Hollow shaft

Ⓑ Rotating pressure tubes

Ⓒ Rotating spacer

Ⓓ "O" Ring gaskets

Ⓔ Two Synthe-Seal ball bearings

Ⓕ Stationary spacer

Figure 6.- Details of the 30-chamber pressure-transfer device.
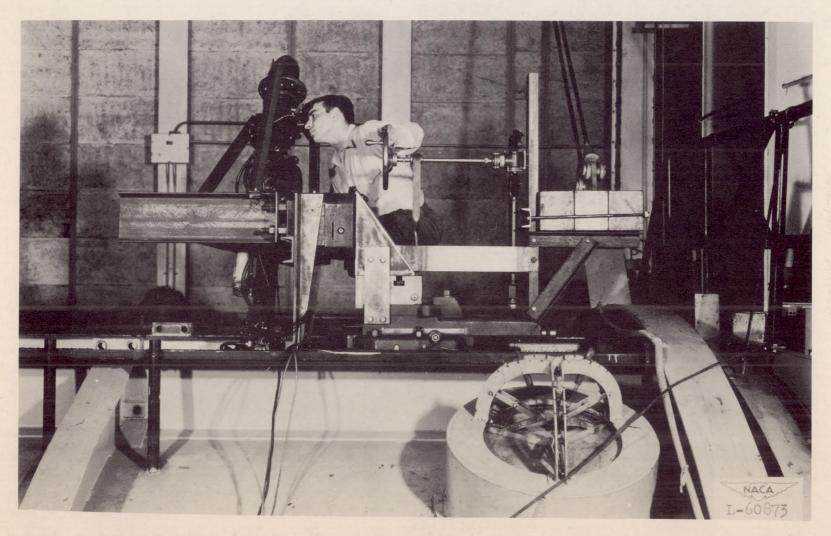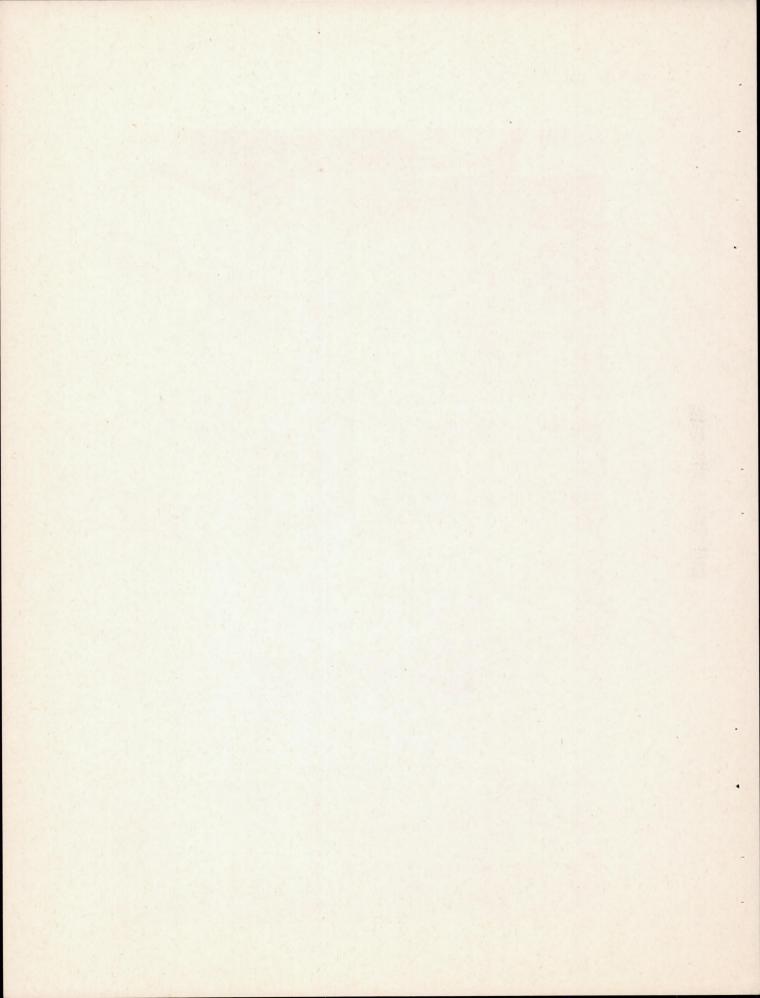
Figure 7.- The optical deflectometer mounted on top of the tunnel test section.
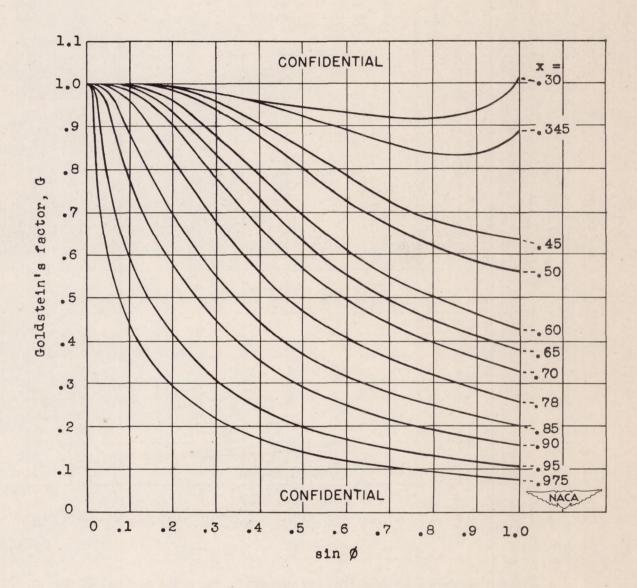
Figure 8.- Goldstein's induced-velocity correction factor for a
two-blade propeller.
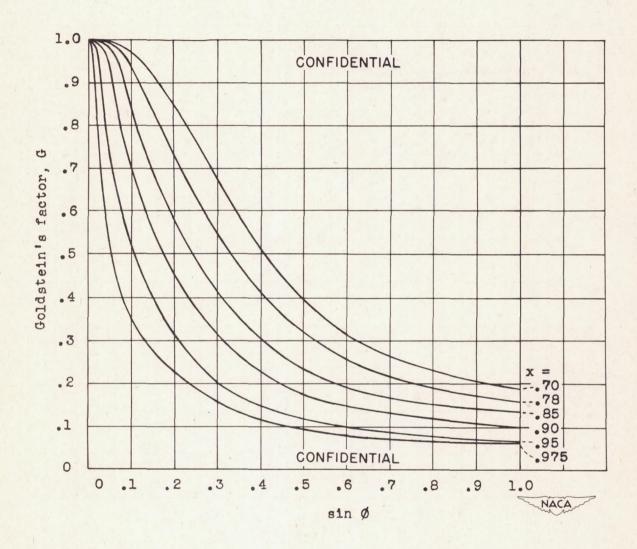
Figure 9.- Goldstein's induced-velocity correction factor for a one-blade propeller. (Extrapolated values.)
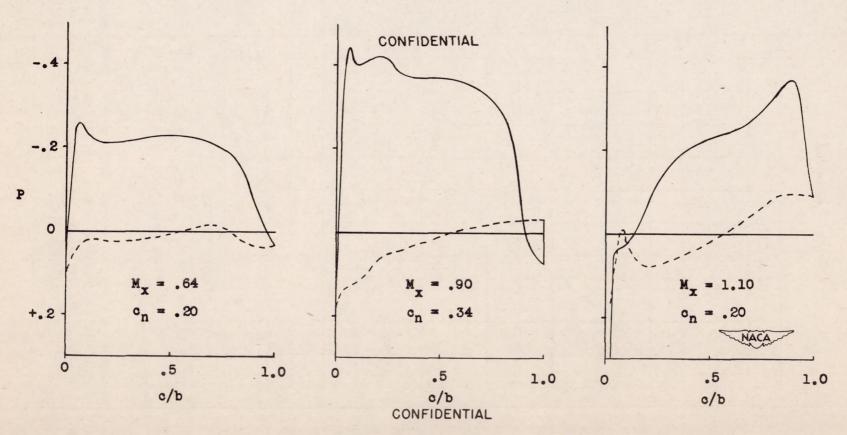
Figure 10.- Typical pressure distributions along the chord of the NACA 16-304.40 blade section located at the 0.95 radius. $\alpha_x = 0.6$ (approx.).
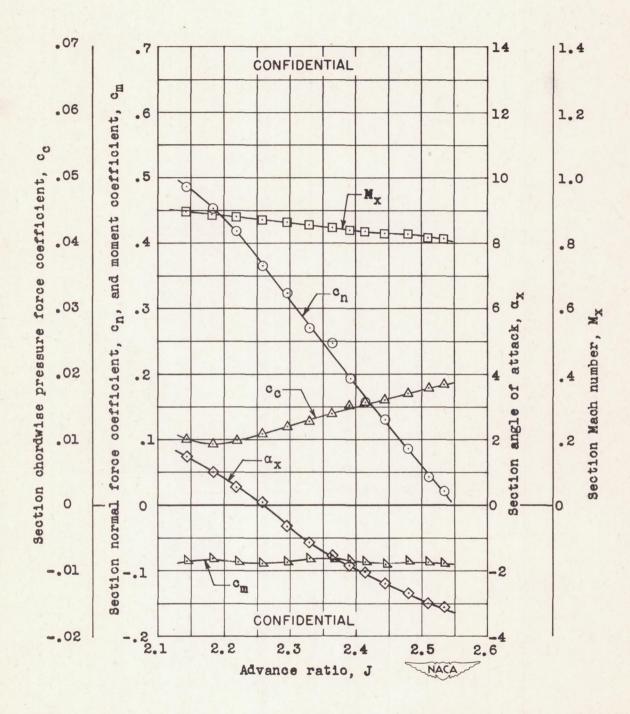
Figure 11.- Variation of section normal-force coefficient, moment
coefficient, chordwise-pressure-force coefficient, angle of
attack, and Mach number with advance ratio for the blade section
at the 0.85 radius, from table 9(e). $\beta_{0.75R} = 45°$; M = 0.56.
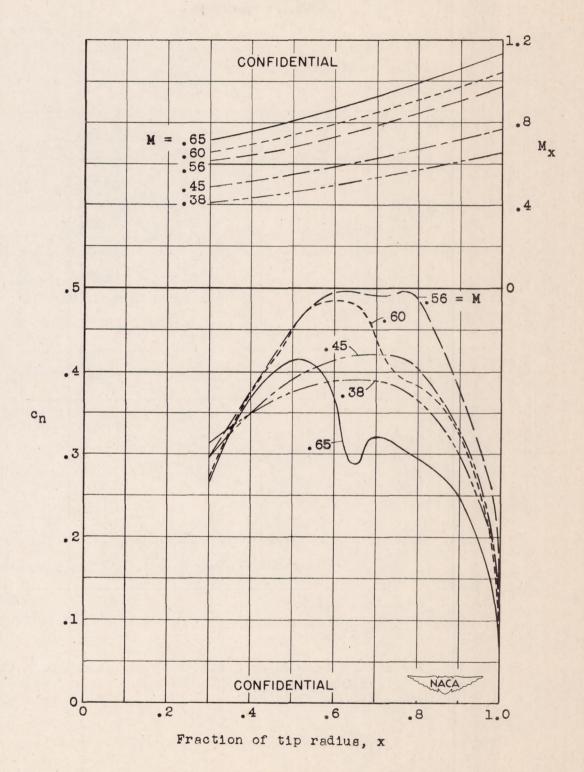
Figure 12.- Variation of the normal-force coefficient and section Mach number along the blade radius. $\beta_{0.75R} = 45°$; $J = 2.2$.
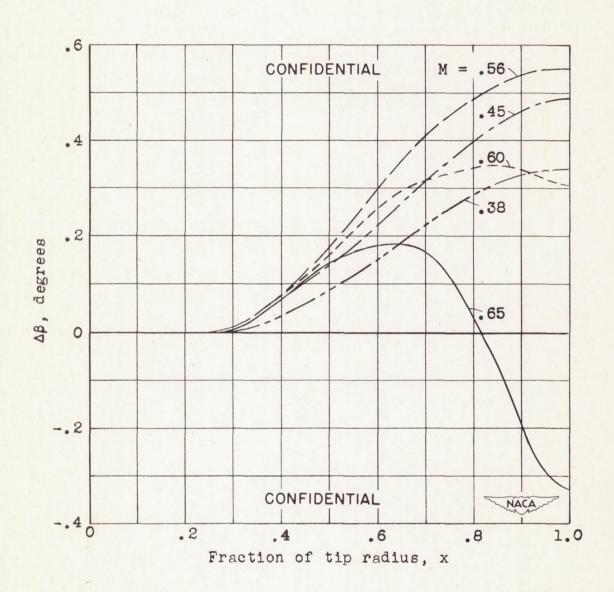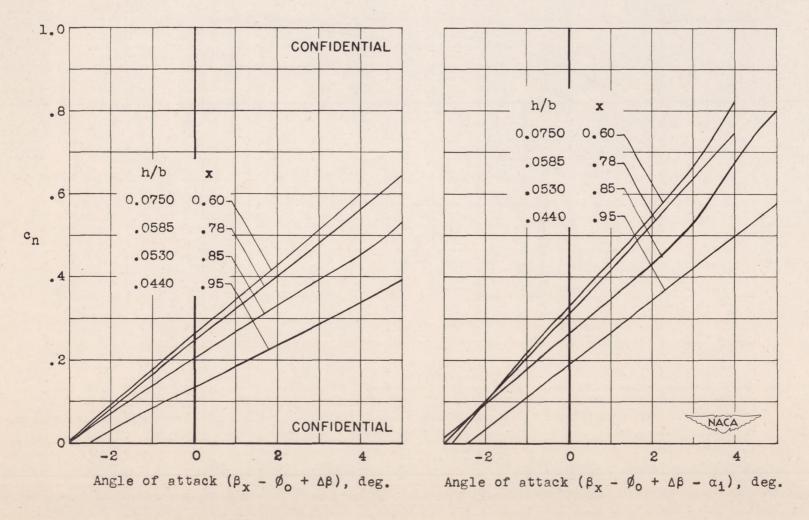
Figure 13.- Variation of the blade deflection $\Delta\beta$ along the blade radius. $\beta_{0.75R} = 45°$; $J = 2.2$.

(a) No correction for the
induced angle.

(b) Correction applied for the induced
angle assuming an optimum loading.

Figure 14.- The effect of the induced-angle correction on the slopes of the normal-force-coefficient
curves. $\beta_{0.75R} = 45°$; $M_x = 0.65$.

CONFIDENTIAL
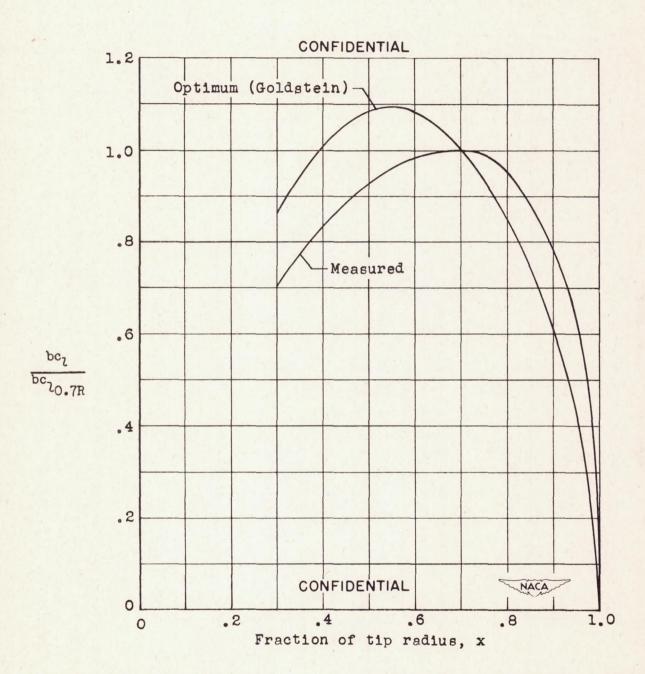
Figure 15.- Comparison of a measured loading curve with the optimum
loading for the same condition of operation. $\beta_{0.75R} = 45°$;
J = 2.2; M = 0.45.

CONFIDENTIAL

TABLE INDEX

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

CONFIDENTIAL

Table 12.— Pressure Coefficients and Aerodynamic Character-
    istics of the Blade Section at the 0.975 Radius

CONFIDENTIAL